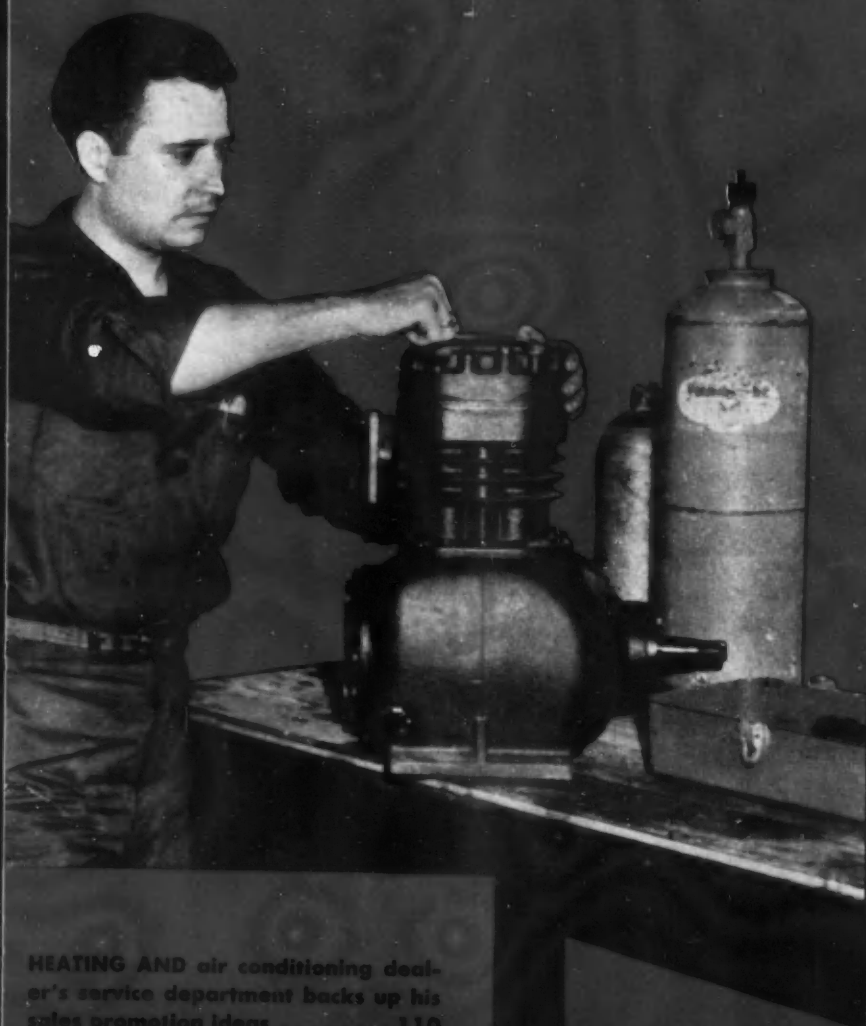


AMERICAN ARTISAN

APRIL 1956

Contents Page 4

RESIDENTIAL AIR CONDITIONING WARM AIR HEATING SHEET METAL CONTRACTING



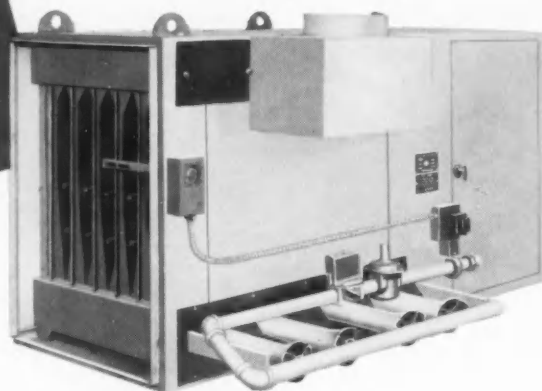
AIR CONDITIONING job modernizes wet heat home 74

SHEET METAL specialty items keep work flow even 86

CHURCH HEATING job calls for perimeter loop system 118

HEATING AND air conditioning dealer's service department backs up his sales promotion ideas 110

BRAND NEW!
 Check your requirements against this new equipment. There's nothing like it on the market!



JACKSON & CHURCH *suspended type gas-fired units*

with inputs of 200,000 to 400,000 Btu

Never before has there been suspended heating equipment like these new J-C units!

First, these J-C units have the first drawer-type burner assembly ever designed into BIG suspended equipment. There's easy accessibility, easy installation, and minimum maintenance built right into these units.

Secondly, these new J-C units are versatile. The draft hood, and the manifold may be assembled on either side of unit, with AGA approval on any combination. Architects will be especially interested in the **simple reversibility** of these new units.

Thirdly, these J-C units are as **powerful as they are versatile**. They deliver a greater volume of air, against a high static pressure . . . ideal for difficult air conditioning jobs . . . such as multiple suspension type installations—installations combining heating with summer cooling—modern

duct unit installations and installations where makeup air is desirable.

These new J-C units are a product of engineers skilled in suspended furnace design.

NEW J-C GAS-FIRED PACKAGE UNITS

GS-20 —200,000 Btu input	GU-20 —200,000 Btu input
GS-24* —240,000 Btu input	GU-24* —240,000 Btu input
GS-28* —280,000 Btu input	GU-28* —280,000 Btu input
GS-36 —360,000 Btu input	GU-36 —360,000 Btu input
GS-40 —400,000 Btu input	GU-40 —400,000 Btu input

**AGA approved
 Application has been made with AGA for
 all other units listed above.*

America's largest and most complete warm air heating line.

J-C

JACKSON & CHURCH

FURNACE DIVISION

SAGINAW, MICHIGAN



Never before — a roof deck finish like this!

*NOW — Bonderized base with baked enamel on Milcor Steel Roof Deck
— a roof deck primer that can really take construction abuse*

Here is important news to everyone in the building industry — particularly to sheet-metal contractors. It is the full and complete answer to problems arising from the punishment taken by roof deck in shipping, handling, hoisting, and use as a working platform.

Only Milcor Steel Roof Deck has this new, far superior primer.

Bonderizing and baked enamel combine to produce the new glossy grey prime finish. The Bonderizing treatment defies corrosion, anchors paint to the metal, protects it against scuffs and scratches. The abrasion-resistant enamel is *baked on* over the Bonderized steel. The result is the finest, most durable finish ever applied to steel roof deck — *and there is no increase in price!*

Milcor Steel Roof Deck with the new primer coat is described in detail in literature just off the press. Send for your copy.

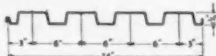
MILCOR® Steel Roof Deck

New "A" Section



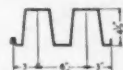
The standard of the industry for closed-rib decks now redesigned to full 24" width.

New "B" Section



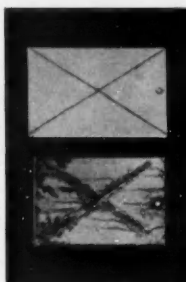
Wide rib distributes metal for greater structural efficiency — gives higher section properties per pound of steel.

New "C" Section



Carries normal roof loads over spans up to 20 feet! Offers greater freedom of design.

The steel panel above at right was treated with Bonderite; the one below at right was not. Both panels were given a coat of Inland Epoxy Resin primer. After an "X" was intentionally scratched on them, the panels were subjected to the A.S.T.M. standard salt spray test for the same length of time. Note that in the finish over Bonderite, rust stopped at the scratch mark while it spread extensively over the plain steel panel.



**NOW ...
three different
types of Milcor
Steel Roof Decks**

W-1848



INLAND STEEL PRODUCTS COMPANY

DEPT. D, 4033 WEST BURNHAM STREET

MILWAUKEE 1, WISCONSIN

BALTIMORE • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DETROIT
KANSAS CITY • LOS ANGELES • MILWAUKEE • MINNEAPOLIS • NEW YORK • ST. LOUIS

AMERICAN ARTISAN

APRIL 1956

FEATURES

Evaporative Cooling — Fast Growing Market	70
Contractor's Roofing Machine Cuts Job Costs	72
How to Air Condition a Wet Heat Home	74
"Test Dealer" Checks Power of Newspaper Ads	78
NWAHACA Conference to Define Industry's Potential .	80
Here's Usable Pattern for a Sales Promotion Plan	82
Sheet Metal Specialties Regulate Shop Production	86
Pipe, Pump Know-How Broadens Cooling Market	88
How to Lay Out a Square to Oval Transformer	94
Latest AC Tests Answer Comfort Questions	97
He Gets Prospects to Help Upgrade Cooling Sales	110
Perimeter Loop System Gets Call for Church Heating ..	118
Courts Review Law of Acceptance of Terms By Mail ..	130

BRIEFS

More Bedrooms, Higher Prices for '55 Homes	93
AC Research to Test Physiological Results	96

DEPARTMENTS

The Editor's Notebook	6
What's Happening	21
Washington Letter	27
Idea Exchange for Dealers and Contractors	34
What the Associations Are Doing	44
Editorial: Take Advantage of New Industry Service ..	69
Hugh Reid's Pattern Problem	94
Equipment Developments	136
New Literature	162
We Hear That	168
Wholesaler Doings	174
Merchandising Ideas	176
Appointments	178
Index to Advertisers	186

Founded 1864; Vol. 93 No. 4

RESIDENTIAL AIR CONDITIONING WARM AIR HEATING SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

Editorial Director—C. M. BURNAM JR.

EDITOR

CLYDE M. BARNES

ASSOCIATE EDITOR

PHILIP D. WARD

ASSISTANT EDITOR

H. C. LENNARTSON

F. HAROLD ALBERT

ADVERTISING STAFF

WALLACE J. OSBORN

ROBERT J. OSBORN

New York City

MUrray Hill 9-8293

ROBERT A. JACK

DAVID V. MAHAN

Cleveland

SUperior 1-1291

GEORGE C. CUTLER

THOMAS V. JOHNSON

JAMES E. SACRA

Chicago

STate 2-6916

JAMES D. THOMAS

Tucson

6-3698

R. PAYNE WETTSTEIN

Los Angeles—DUrkirk 8-2286

San Francisco—YUkon 6-2522

Portland—CApitol 8-4107

Published monthly by Keeney Publishing Company, 6 N. Michigan Ave., Chicago 2, Ill., U.S.A. Copyright 1956 by Keeney Publishing Company.

President and General Manager—
CHARLES E. PRICE

Production Manager—L. A. DOYLE

Circulation Director—FRANK S. EASTER



ABP . . 1906-1956 . . Fiftieth
year aiding business progress

Member of Audit Bureau of Circulations,
Magazine Publishers Association, Inc., and
Associated Business Publications

Yearly Subscription Price—U.S. and possessions, \$3.00; Canada, Cuba, Mexico, South America, Central America, \$4.00; Others \$6.00. Single copies, U.S. and possessions, 35c. Back numbers, 60c. January, 1956, Directory Issue, \$1.50 per copy. *Change in Address:* Report new and old address to publisher and local post office; deadline date 18th of preceding month. Entered as second-class matter, July 29, 1932, at the post office at Chicago, Illinois, under the Act of March 3, 1879. Additional entry at Mendota, Ill.

How to fulfill the **PROFIT PROMISE OF OHI**



Home improvement starts with comfort...
comfort starts with

Mueller Climatrol



Only once in a while does a promotion idea come along that's so dramatic it captures everybody's imagination. Such an idea is *Operation Home Improvement*. Widely publicized by America's best-read magazines . . . endorsed by community leaders everywhere . . . OHI has tremendous profit potential for you.

MUELLER CLIMATROL IS THE PAY-OFF!

No other manufacturer gives you the complete selection of selling aids — all specifically designed to help you get more replacement business. Powerful national advertising routes prospects your way . . . invites them to see the man who handles Mueller Climatrol . . . America's most complete line of heating and cooling equipment.



Sell perfect comfort all year round with Mueller Climatrol companion air conditioners. Ideal replacement units! Home-owners respond to step-at-a-time economy.

Sales are
turning greener
every day!

see your man from

Mueller Climatrol

Get all the facts on what we're doing to help you capitalize on Operation Home Improvement. Ask your man from Mueller Climatrol . . . or write Mueller Climatrol, Dept. 46, 2030 W. Oklahoma Ave., Milwaukee 15, Wis.

the editor's notebook

Thumbing Through This Month's Artisan

... we find out *How to Plan Piping, Select Pumps for Cooling Towers, Evaporative Condensers* in S. W. Reid's article prepared in response to inquiries from readers who have recognized the need for specifying water saving systems with their air conditioning installations. The author emphasizes the importance of selecting the proper piping system and pump and recommends procedures for determining the equipment to use. Pump and pump-system characteristic curves are presented in the article which is based on three factors — frictional forces, gravity and pressure at the end of the line — a pump must overcome in order to create flow in a piping system.

Promotion

... and we launch a merchandising program, based on the successful experiences of dealers and contractors, with Robert G. Mihan, who suggests we *Try This Recipe for Lead-to-Sale Promotion Plan*. We are shown some new twists to established sales promotion practices and we develop some new ideas which are designed to increase sales volumes by creating a market and then selling that market through a well rounded sales promotion program geared to the dealer's own operation and developed accordingly.

Perimeter

... we are shown by B. A. Kosarin how a *Perimeter Loop System Heats New Church* with stringent heating and ventilating requirements. We trace the

Every One Tested

for unsurpassed performance

Produced under rigid laboratory standards, all Steinen products are tested to assure top flight performance.

That is why many blue chip companies automatically specify STEINEN products for all their installations.

Steinen Products

- Calibrated Draft Regulators
- Mirror Finish Oil Burner Nozzles
- Ignition Electrode Assemblies
- Flame Inspection Mirrors
- Nozzle Kits
- Nozzle Adapters



A GOOD MARK TO GO BUY



WM. STEINEN MFG. CO.

43 Bruen Street Newark, N. J.

Represented in Canada by Imperial Refractories Ltd.—Waterloo, Ontario

the editor's notebook

(continued)

path of the warm air from the million Btuh furnace through a sub-slab central duct and its branches to a vitrified clay tile perimeter ring, through lateral branches to diffusers in window stools where it blankets windows and outside walls. We see how the system provides warm, draft-free floors, uniform air temperatures, outside air for ventilation and quiet operation, and we note that future air conditioning and future additions to the present structure are provided for in the heating system design.

Roofing

... and we visit a Duluth sheet metal shop where a *Contractor Turns Double Profit from Roofing Machine* which fabricates sheet metal roof in the shop, reducing on-the-job costs, and which later may be manufactured in quantity by the contractor. We see how spare time is utilized by fabricating the components to the proper specifications so the roof can be installed quickly regardless of weather conditions, and at a saving of approximately 80 percent on a job.

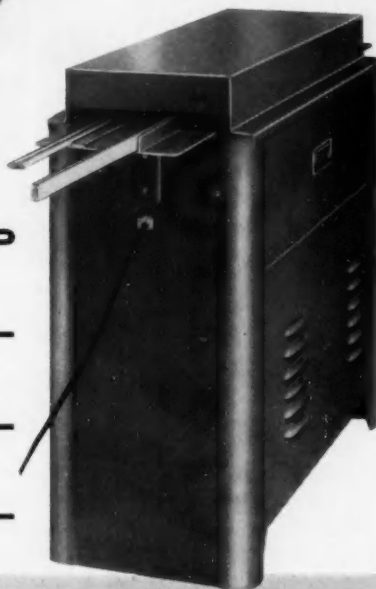
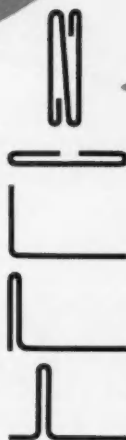
How to Get Members Out to Conventions

A PROGRAM to build larger attendance at state association conventions has been tried during the past several years by the Sheet Metal Contractors' Association of Illinois and has proven very successful. I take this opportunity to congratulate the association on this promotional stunt. Here is how they do it. Each registrant is asked not only for his business address but for his home address as well. The next year the lady of the

ALL THE CLEATS YOU NEED... — in minutes... for pennies...

THE CLEATFORMER

The double hem "S" cleat shown at upper right gives you a stronger, stiffer cleat from lighter gauge metal . . . permits the use of longer cleats, can be used as a snap lock and is a perfect match to the drive cleat. Auxiliary rolls, mounting on extended shafts make drive cleats; one additional set of rolls make all three lower shapes (right angle flanges, standing seams and T connections).



THE STANDING "S" MACHINE



With cover removed showing extended shafts for mounting auxiliary rolls.

Rolls a combination "S" cleat and standing seam in one pass through the machine. An ideal cleat where extreme strength and rigidity is necessary such as in fabricating large trunk or branch lines in industrial heating and ventilating units. A real "special order" piece of equipment at stock model prices. Extended shafts are provided for mounting auxiliary rolls for other special forming operations (ten-stage forming plus heavy capacity permit wide latitude in this respect).

Send for your free copy of the Lockformer Catalog

THE **LOCKFORMER** CO.

4615 WEST ROOSEVELT ROAD • CHICAGO 50, ILLINOIS

the editor's notebook

(continued)

house receives a personal letter from the ladies' committee chairman outlining the ladies' program (and it's always an interesting one). The lady of the house is invited to attend the next convention, and of course to bring along her husband. What contractor or dealer can say no, he's too busy to get away for a convention, when his wife has already decided that *they* are going? See you in Springfield.

Another Stunt That Boosts Attendance

ANOTHER convention attendance promotional stunt is the arrangement made by the Roofing and Sheet Metal Contractors' Association of Florida with the convention bureau of St. Petersburg. The bureau mailed out an oversize post card—picturing some of the beauty spots near the city and some of the activities enjoyed by those visiting the area. The message is very appealing and concludes with an invitation to "bring the family and enjoy a rest from the daily grind." To me it looks like the Florida association will be handling its largest convention registration yet when the 1956 Convention program gets under way April 27-28.

SMCNA Head Effects Change in School System

EVERYONE knows that school teachers hold a most important place in our way of life, both in the present and certainly in the future. Every once in a while some highly theoretical authority comes along and tries to make the world conform to his simple points of view, which is what has happened in the Washington, D. C. school system where a teacher's salary is determined by whether he has

the editor's notebook

(continued)

a bachelor's degree, a master's degree, or a master's degree plus 30 credit hours. A skilled journeyman who had been working as an instructor didn't qualify for any of these, and to be generous the school board offered to pay him a salary equal to that paid teachers in the lowest classification.

Paul Stromberg, president, Sheet Metal Contractors' National Association—a Washington, D. C. contractor who is a director of the Washington Building Congress and chairman of its apprenticeship committee—wrote to the superintendent of schools in protest, with the result that separate standards are to be established for trade teachers and academic teachers. The importance of having the best possible teachers for apprentices cannot be overstressed, because the quality of the instruction they receive will be reflected in the skill displayed when they are placed on their own, and the growth of the industry is dependent upon the quality of the work the public receives. My hat is off to Paul Stromberg and his committee for their awareness of this important phase of our industry—the training of youth.

No Estimates Yet On '56 Labor Costs

IN THE FEBRUARY issue we published a news item about a survey conducted by the Oil Heat Institute of America. The survey—reporting on the prospects for business in our industry during 1956—was conducted late in 1955, and we quoted the opinion of most of those contacted. In reporting the comments, we stated that labor costs were expected to be up from 5 to 6 percent in the fourth quarter. We should have said this referred to the fourth quarter

AT-A-GLANCE Sentry TANK GAUGES

REMOTE READING
INDOORS • OUTSIDE
UNDERGROUND



Type D-O and D-10 Gauge for basement tank installations with 2" and 1 1/2" openings respectively.

**ACCURATE, DEPENDABLE,
WEATHERPROOF GAUGES**

Easy to install... Easy to read!

Unaffected by specific gravity changes or variations, Sentry Remote Gauges accurately indicate liquid level at all times. Simplified mechanical operation eliminates unnecessary fittings, bulbs or levers for serviceman to tamper with as well as his need for access to building. Remote Gauge may also be combined with At-A-Glance Direct Gauge, shown below, for readings at both tank and remote location if desired. Non-corrosive, stainless steel and brass extension lines connect tank float with heavy-duty cast aluminum, weatherproof, thermometer type indicator — calibrated in fractions. Unconditionally guaranteed. Write for descriptive literature.



Type D-U Gauge for underground tank installations. Fits 2" openings only.

Sentry AT-A-GLANCE GAUGES

For accurate DIRECT tank readings

Fastest selling, most popular gauge in the industry. Simplified mechanism eliminates gears, cams, springs and magnets that wear out and cause trouble. Durable assembly featuring patented fog-proof, heavy-duty breakable plastic domes with printed double scale between for clear, easy-to-see readability from any direction. Gauge is Underwriters' Listed and will withstand in excess of 70 lbs. air pressure per sq. inch. Entire unit is non-corrosive and guaranteed leakproof under pressure filling and against defective operation, workmanship and materials. Quick, simple to install even on partially filled tanks. Write for complete descriptive literature.



KRUEGER Sentry GAUGES

GREEN BAY • WISCONSIN

Smoke Pattern proves there is a difference in perimeter heating and cooling

TITUS

Perimeter Diffusers are engineered for

100% DIFFUSION EFFICIENCY

Locating an outlet at the perimeter of a building will not insure a better job. IT'S THE DIFFUSER THAT COUNTS.

Here's Why Titus
Perimeter Diffusers
Outperform
All Others



- Exclusive Titus baffles assure constant 180° diffusion. Fixed boot opening eliminates changing air pattern by relocating opening.
- No pattern change due to damper movement.
- Exclusive Titus baffles and fixed boot opening keep pattern constant at high or low air flow rates.
- Low pressure loss, high capacity requiring less duct runs.
- Greater free areas incorporated with baffles, insuring less turbulence, eliminating drafts and temperature stratification.
- Air directed to higher room levels for efficient cooling and in a broad fan for blanketing wall during heating.
- Saves labor. No metal cutting...no damper installation or other time-consuming problems.
- Diffusers completely assembled...ready to install.



SEND FOR FREE
CATALOG TODAY



Titus Manufacturing Corp., Waterloo, Iowa
Gentlemen: Please send me free catalog, including comprehensive engineering data on new TITUS PERIMETER DIFFUSERS.

NAME

COMPANY

ADDRESS

CITY

STATE

the editor's notebook

(continued)

of 1955, as the figures were not all in on labor costs for that period at the time we went to press. There is no estimate on the possible increase or decrease in labor costs for the fourth quarter of 1956 as yet.

January Issue a Year 'Round Reference

ON JANUARY 31, O. W. Morris, Desert Hot Springs, Calif., wrote me, "I have received my January issue and have already read it from cover to cover. I would like to say that I have enjoyed every page of it."

It's always good to hear from one of our subscribers, especially when he writes so promptly after reading an entire issue. Mr. Morris is to be congratulated for reading such a large issue as the January number so thoroughly and so quickly. We often hear from subscribers late in the year commenting on how helpful the directory has proven to be in their purchasing of specific makes of equipment. We have a separate department that works on the directory the year around. If you are looking for an item about which you know little more than the trade name or the general address of the manufacturer, write me and I'll forward the latest information we have on it.

Unnecessary 'Extras' Used for Eye Appeal

I HAVE just learned that 1955 set a new high in sales volume for the steel kitchen industry both in dollar volume and in unit sales. The '55 sales figure was about \$35 million over the '54 total of \$175 million. This is a 20 percent increase and shows

Creative Engineering PRODUCES *Nu-Way* OIL BURNERS



Save yourself time, bother and worry. Select an oil burner that you can be sure will live up to your customers' expectations. Nu-Way Oil Burners, a product of thirty-five years of creative engineering, have been *exceeding* expectations . . . and establishing new goals of engineering standards. Only the highest quality components go into the building of Nu-Way Burners. Performance-tested motors—extra-heavy transformers . . . plus rigid sand cast housings and 0.0015" motor pump alignment for quieter operation. Painstaking final assembly assures you that the **creative engineering** of Nu-Way Burners results in longer life and lower upkeep.

For detailed information, write the Nu-Way Corporation, Rock Island, Illinois, Dept. AA-456.

the editor's notebook

(continued)

the results of a good merchandising program. But who ever heard of a happy housewife in a cold kitchen? Much of the money that went into this type of appliance was taken from the heating dealer's bid, with the result that a heating system that met only the minimum requirements was installed. With the growing favor of zone controlled systems, prospects should be given a chance to weigh the advantages of the best heating system against unnecessary "extras" that builders pour into a new house simply because they have eye appeal.

Advantage of Warm Air Over Electric Heating

THERE HAS BEEN a lot of interest on the part of electrical power suppliers in expanding into the heating field. Of course, in most parts of the country, electric power cannot meet the heating economy of combustional fuel; however, the long range plans of many electrical power producers include erection of nuclear plants for power production at lower costs. A recent survey which was conducted among the nation's representative power suppliers—utility companies, municipals and REA cooperatives—indicated that 58 percent of the 420 companies participating in the survey are in favor of supplying power in quantities required for house heating. Twenty-six per cent were neutral in their attitude, whereas only 16 percent were not in favor of this use of electrical power.

Those now conducting sales promotional programs are pointing out many so-called advantages of electrical heating, but there is one advantage that warm air heating dealers can offer over

Vornado®

CENTRAL AIR CONDITIONERS

... FIELD TESTED AND

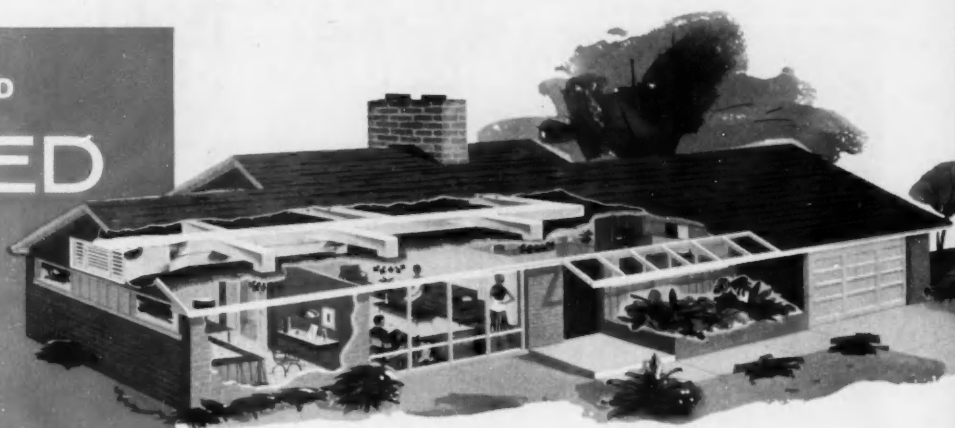
PROVED

IN

Performance

Economy

Price...



VORNADO OFFERS YOU A MASS MARKET PROMOTION PLAN!

Use dramatic sales-clinching sales promotion aids to sell Vornado air conditioning:

- ★ "Salesman-size" scale-model demonstration home—with unit actually installed!
- ★ Sales Demonstration Manual—tells the Vornado story graphically, with moving sections.
- ★ A "Market Place" display for in-store demonstration!
- ★ Door Hanger "Estimate" Tags! Window Displays! Decals! TV and Radio Spots! Publicity "gimmicks"! Early-Season and In-Season Store Promotion Plans!

—And local advertising is backed by powerful national advertising in *Life*, *Better Homes & Gardens*, *American Home*, and other leading shelter publications!

now YOU can sell the MASS MARKET...for MASS PROFITS!

Are YOU going to PANAMA with VORNADO?

Want to hunt wild jaguar in the jungle? Bask in luxury at the magnificent El Panama Hotel? Enjoy exotic Panamanian night life... visit the Canal?

IT'S EASY TO WIN A TRIP!

**FIRST QUALIFYING PERIOD
CLOSES APRIL 15**



Product of THE O. A. SUTTON CORPORATION, Inc. • Wichita, Kansas
Specialists in the manufacture of comfort cooling appliances

PRE-ENGINEERED • READY FOR THE JOB

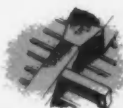
Installations in thousands of homes in the hottest of weather have proved—Vornado cools **BETTER** for **LESS!**

Easily installed... at a low price—Vornado opens *mass market* sales for aggressive dealers. It's designed for the average home—AND the average budget!
Lets you sell for hundreds of dollars less.

Field-tested features that Cool Better for LESS!



COMPLETELY "PACKAGED" Vornado puts air conditioning in self-contained, air-cooled package... eliminates extra plumbing... water connections... outside accessories. Everything in just one compact, sturdy package!



PREFABRICATED DUCTS developed by Vornado! Low-cost, prefabricated, insulated fiberglass ducts that drastically reduce installation time and cost. Pre-scored sheets are simply taped together!



TWIN COMPRESSOR UNIT. Two hermetically-sealed, heavy-duty compressor units. One operates continuously—maintains a cold evaporator at all times... constantly removes excess humidity. Second compressor cycles on and off as needed for economy's sake.



FULLY GUARANTEED. Factory warranty (backed by the experience required to build more than seven million Vornado cooling appliances!) assures satisfactory service.

The O. A. SUTTON CORPORATION, Inc.
1807 West Second Street Wichita, Kansas

I want complete information on your new low-cost Vornado central air conditioner.

NAME _____

FIRM _____

POSITION _____

ADDRESS _____

CITY _____ STATE _____

the editor's notebook

(continued)

panel heat systems and that's clean, circulated air that is adaptable to the central cooling of a residence.

Checks Lead-In Wiring At Every Point of Call

DURING A TRIP to New York City I talked with Art Thys, one of our Birmingham, Ala., subscribers. Art said that the recent articles we have published on electrical requirements for air conditioning equipment had him checking the lead-in wiring at every house before he rang the doorbell. "It's a good idea to go in well prepared", he said.

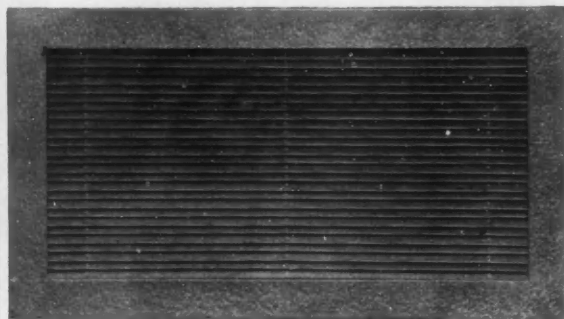
'Wish I'd Said That' — Artisan Editor

I LIKED this comment: "Advertising and promotion will gain the public's attention but only efficient, capable performance will hold it." The foregoing was published in the Oil-Heat Institute *News* in an item dealing with the importance of educational programs. It definitely takes a well balanced program to keep a dealer's business growth healthy and profitable. I might reword the comment to this "Tell about your services and then show them."

Reader Takes Time Out To Express Appreciation

WHEN subscriber L. V. Nicastro wrote me to change his address, he added this appreciated comment: "I would like to take a minute to tell you how much I have enjoyed reading your magazine." This is just one of the many letters we receive daily but his expression "to take a minute" describes the activity of our industry. We always like to

NEW! Thin-Core Grilles for Doors—Partitions 1/4" to 3/4" Thick!



- CUTS INSTALLATION TIME 1/2!
- EASY TO INSTALL — NO DANGER OF RUINING DOOR!
- COMPLETE — NO WOOD MOLDINGS TO ADD!



First Grille ever designed specifically for thin doors and partitions. Anyone can install it in just a few minutes time. No close tolerances required . . . almost a half-inch extra on sides for positioning. Telescoping auxiliary frame fastens to grille with posts and screws. Clamps tight. No holes to position. Practically no danger of ruining door. No wood moldings. All steel. Rattle-proof. No vision, with 80% free area. Available with or without frame, all sizes. Gray or tan prime coated, or Hammertone finish in gray or bronze.

**ACTUAL SIZE
CROSS SECTION** ➔

Write For Our Complete

FREE CATALOG

Listing Over 1000 Types and Sizes of
Grilles for Every Requirement

A-J MANUFACTURING CO.

Dept. A-4
3601 E. 18th St., Kansas City 27, Mo.



the editor's notebook

(continued)

hear from our readers and understand that the time element often keeps many others from writing. If you can follow Mr. Nicastro's example and "take a minute" we would like to hear from you.

Can Continue to Expect Million Homes Annually

WITH THE COMING of spring the home building industry, after a record breaking winter, is heading into what is normally its biggest season. About this time people begin to wonder if the building rate of 1,250,000 units a year can continue for long. Economists tell us that new household formations are at a rate of 600,000 annually, just about half the number of housing units to be built this year. There are many other reasons to make us believe that the current building rate is not far from the annual figure to expect from now on. Fires, deterioration and slum clearance programs all add to the need for a larger number of housing units each year, enough to assure a demand for over 1,000,000 new units annually.

Points to 'Sally Rand' Of Furnace Field

EVERY once in a while you hear of a new meaning for an old term. I thought this one was very descriptive as used by Los Angeles' Institute of Heating and Air Conditioning Industries' new president, Robert M. Johnson. Mr. Johnson, speaking about different types of furnaces, called one of them a "Sally Rand" — a furnace stripped down to bare necessities.

Clyde M. Barnes

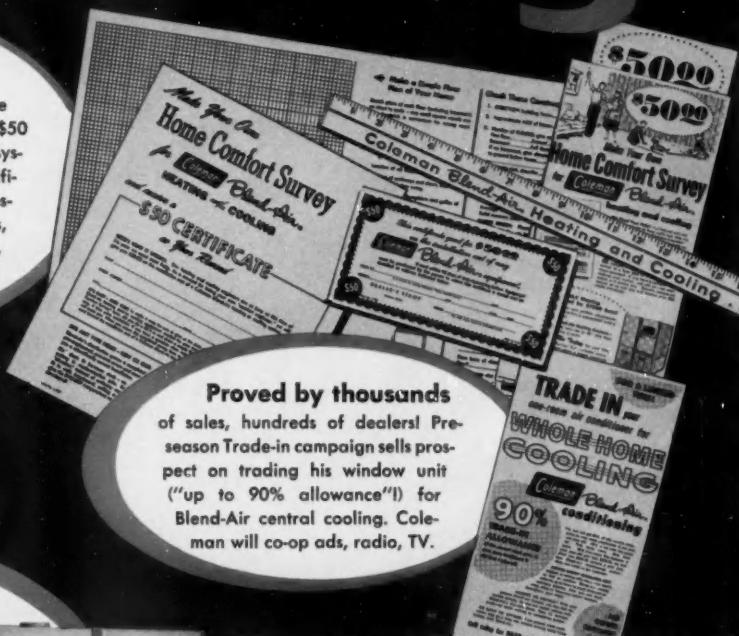
EDITOR

Use these **Coleman** local promotions to **BUILD A LIVE PROSPECT LIST**

Plan NOW for a boom year in cooling

Brand new approach!

Invite the home owner prospect to be his own "Comfort Engineer" and save \$50 on the installed price of his Blend-Air system. Once he earns his \$50 credit certificate, you KNOW you've got a live prospect. Program includes survey forms, yardsticks imprinted with your name, credit certificates, co-op ads.



Proved by thousands

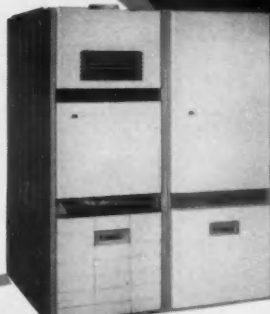
of sales, hundreds of dealers! Pre-season Trade-in campaign sells prospect on trading his window unit ("up to 90% allowance") for Blend-Air central cooling. Coleman will co-op ads, radio, TV.



Tested, proved

year-round "use-the-user" campaign enlists the aid of satisfied Blend-Air customers and others in searching out new prospects.

plus . . . many other ideas, ads, displays and direct mail. Tie-ins with national advertising in LIFE, Saturday Evening Post, Sunset Household and Small Homes Guide.



Use Blend-Air EXCLUSIVES to close more sales!

- ONLY COMPLETELY PACKAGED SYSTEM . . . pre-fabricated at factory to reduce layout time, eliminate costly shop work.
- INSTALLS IN HALF THE TIME — smaller 3½-inch ducts save labor and inventory.
- COMPLETE LINE of Vertical and Plenum Coolers to install with any heating.
- BEST HUMIDITY CONTROL with exclusive Coleman blenders.
- LOWEST COST COOLING to operate with exclusive Air-Mist evaporative condenser.



COLEMAN SINCE 1900
— makers of lamps, lanterns, camp stoves, home heating and air conditioning.

COLEMAN Vit-Rock water heater . . .

backed by 10-year warranty and EXCLUSIVE \$500 Bond . . . strongest guarantee in the industry! Only Coleman has the rock lining that can't rust!

MAIL COUPON TODAY for complete information!

The Coleman Company, Inc.
Dept. AA-160, Wichita 1, Kansas

Gentlemen: Please send me complete information on Coleman Blend-Air cooling and the 1956 Coleman local promotions. I sell ☐ gas or LP-gas, ☐ oil heating equipment.

Name _____
Firm Name _____
Address _____
City _____ Zone _____
State _____

REPUBLIC STEEL SHEETS

**make your
jobs**



REPUBLIC



World's Widest Range of Standard Steels

fabricating easier, better

Whatever your application or fabricating problem, it will pay you to contact your Republic Steel Distributor. He carries a wide variety of Republic Steel Sheets, each with specialized characteristics designed to beat production headaches, and provide long, trouble-free service. Here, for example, are four of our most popular sheets:

CONTINUOUS GALVANIZED—Republic's new continuous galvanizing process produces an exceptionally tight and uniform zinc coating. It will withstand any forming operation permitted by the base metal without cracking, peeling or flaking. Available with plain or copper steel base, Republic Galvanized Sheets are sufficiently ductile to assure easy workability, yet rigid enough to meet service requirements. Uses include duct-work, roof drainage products, containers, bins and hundreds of other applications where economy in first cost is of primary importance.

ELECTRO PAINTLOK®—Electrogalvanized and chemically treated, this sheet is specifically produced for products requiring painting, lacquering, varnishing, lithographing or synthetic enameling. Electro Paintlok Sheets are shipped from the mill in prime condition for painting. Their treated surfaces take and hold paint better . . . and this paint-holding quality remains unaffected after shearing, forming, drawing, stamping, spinning or rolling.

GALVANNEALED—Annealing immediately after hot dip galvanizing gives Republic Galvannealed Sheets an extremely weather-resistant surface, well-suited to painting. This process produces a sheet which ranges from



FOR BEST RESULTS in solving fabricating problems, specify Republic Steel Sheets. If your operations include shearing, blanking, piercing, flanging, soldering, beading, Pittsburgh Locking, stamping, welding or other forming processes, you will find the right type of sheet to meet economically both production demands and application specifications.

a solid steel interior through varying zinc-steel alloys to pure zinc on the surface. The result is a coating which is an integral part of the base sheet. Flaking or peeling is practically eliminated. Galvannealed Sheets can be used for outdoor applications even when only one side is painted.

ENDURO® STAINLESS STEEL—Here is the most versatile of all sheet products available to the metal working industry. ENDURO® provides both high strength and maximum resistance to rust and corrosion. Its lustrous beauty is ideal where applications call for attractive appearance with minimum maintenance. In addition it is heat- and abrasion-resistant. Your Republic representative will be glad to give you helpful tips to enable you to fabricate ENDURO readily on your present equipment.

So to meet job specifications and beat fabricating problems, contact your Republic Steel Distributor. He can give you fast service on Continuous Galvanized, Electro Paintlok, Galvannealed, ENDURO Stainless Steel or other Republic Sheet and Strip Products. Or mail the coupon for further information, today.

STEEL

and Steel Products

REPUBLIC STEEL CORPORATION • Dept. C-1729
3162 East 45th Street, Cleveland 27, Ohio

Please send me more information on:

- ☐ Continuous Galvanized Sheets
- ☐ Electro Paintlok Sheets
- ☐ Galvannealed Sheets
- ☐ ENDURO Stainless Steel Sheets

Name _____ Title _____

Firm _____

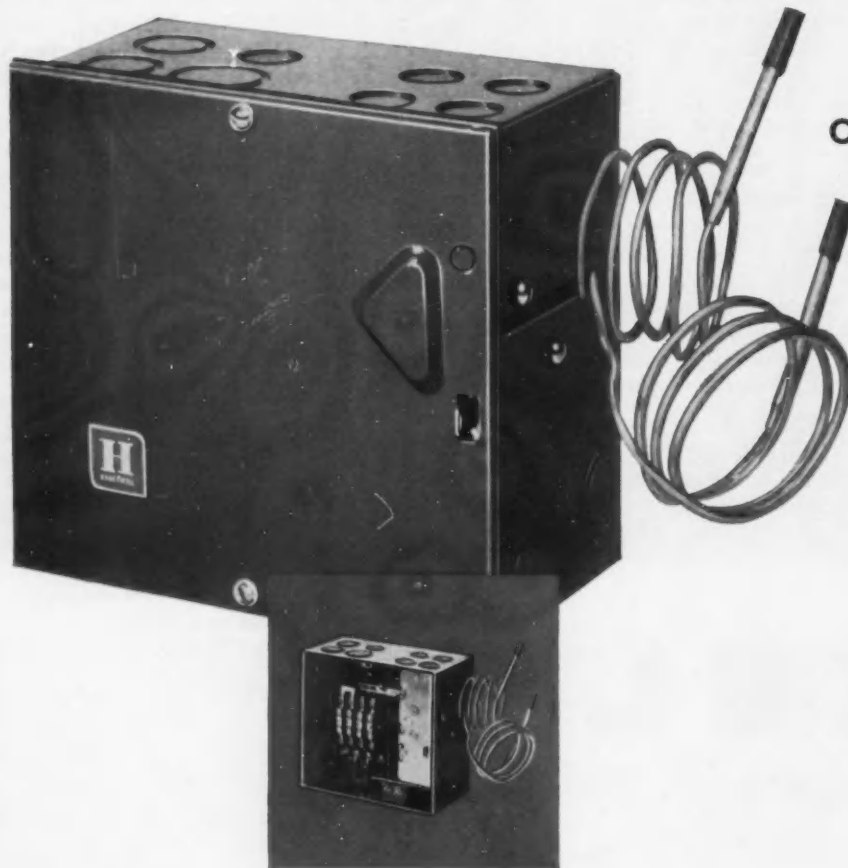
Address _____

City _____ Zone _____ State _____

New From Honeywell!

Specially designed for air conditioning systems with remote condensing sections

A heating-cooling control panel in two parts!



OUTSIDE!

The W400 panel is mounted outside in the condensing section.

It operates the compressor and the condenser fan on demand from the inside (W226) control and the room thermostat. The W400 also provides Hi-Lo pressure control for dependable, safe operation.

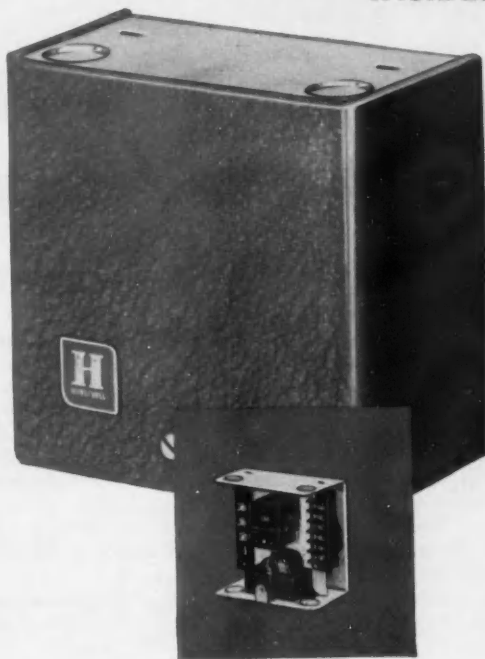
Convenient knockout arrangement and accessible, clearly marked terminals make for easy field wiring.

The new W400 has the exclusive new design Honeywell contactors for sure starts and positive stops, with design features that minimize arcing and eliminate sticking.

It also gives you the economical choice of 24, 30 or 40 amp contactors, depending on your requirements.

Corrosion-proof case and cover available where required.

INSIDE!



The W226, inside the house, sequences the cooling and heating equipment on demand from the room thermostat.

This attractive W226 panel is available in six different models to provide the exact sequence you want for your customers. Each is prewired to simplify installation with "wrap-around" design that completely exposes terminals when the cover is off for easy servicing.

The small and compact panels are available in the following models

W226A —single-speed fan relay and transformer.	lay, heating relay and transformer.
W226B —2-speed fan relay and transformer.	W226E —single-speed fan relay, reset relay and transformer.
W226C —single-speed fan relay, heating relay and transformer.	W226F —2-speed fan relay, reset relay and transformer.
W226D —2-speed fan re-	

Only 115 volts required *inside* to power 40 Va Transformer for low-voltage control system and *all* inside heating-cooling equipment.

Order your condensing units with Honeywell W400 panels—offer your customers their choice of thermostat operation with the flexibility of the W226 line.

- Attractive—compact
- Less field wiring
- Easy installation
- Customers choice of thermostat sequencing
- Only two 24 volt wires between inside and outside panels
- Only 115 volts required at furnace and evaporator section—230 volts to condensing unit outside
- Famous Honeywell quality
- One manufacturer—undivided responsibility
- Factory built and factory guaranteed

MINNEAPOLIS
Honeywell

For full information on the Honeywell 2-part Control Panel for air conditioning systems with remote condensing units, call your local Honeywell office or write to Honeywell, Dept. AA-4-80, Minneapolis 8, Minnesota.

112 OFFICES
ACROSS THE NATION



Year-Round Temperature Controls

Greatest advance in

Worthington's exclusive new FLEXI-COOL

easy-to-handle sections...

That's the story in a nutshell! The FLEXI-COOL line—unique in design and completely flexible, goes together like building blocks—covers installations that ordinarily would require many different types of equipment.

Worthington's new FLEXI-COOL—in 2, 3, 5, 7½ hp sizes—permits you to stock a minimum of equipment yet solve any home, office or store air conditioning installation. Not only does FLEXI-COOL reduce the size of your inventory (and simplify your stocking problems) but it also automatically cuts your inventory costs.

The new FLEXI-COOL line consists of three basic sections—cooling cycle, filter and blower—plus accessory packages. A combination of these three basic sections (or a remote duct coil, and water or air-cooled condensing unit when needed) permits you to solve any type of installation. Sections fit together as a single compact unit . . . or can be installed separately in any location. With a choice of vertical or horizontal positioning, you can easily obtain the air intake and delivery best suited to the installation. That's how flexible the FLEXI-COOL line is.

Once installed, you can count on FLEXI-COOL's reliable Worthington compressor to provide the kind of service-free operation that makes your job easy and assures complete customer satisfaction.

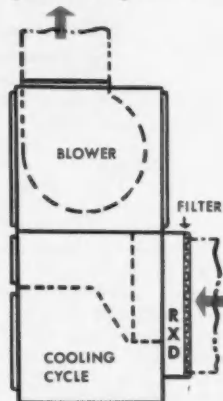
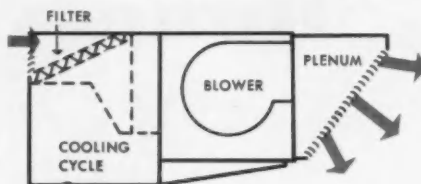
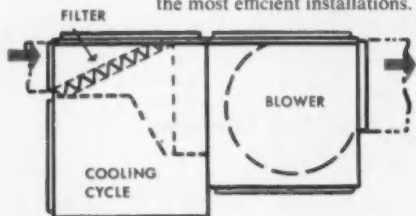
Get all the facts on the new FLEXI-COOL line and on Worthington's complete line of residential, commercial and central station equipment. Write Worthington Corporation, Air Conditioning & Refrigeration Division, Sec. A.5.55—A, Harrison, N. J. A.5.55



Worthington's new FLEXI-COOL air conditioning line is sectional, completely flexible. Cooling cycle, filter and blower sections fit together like building blocks for either vertical or horizontal positioning. (Sections may also be installed separately in any location.) New unit adapts to water and air-cooled applications—all types of space limitations. In 2, 3, 5 hp sizes, FLEXI-COOL is less than 2 feet wide, only 2 feet high and 38 inches long. Overall dimensions slightly larger for 7½ hp unit.

FLEXI-COOL FITS TOGETHER LIKE BUILDING BLOCKS

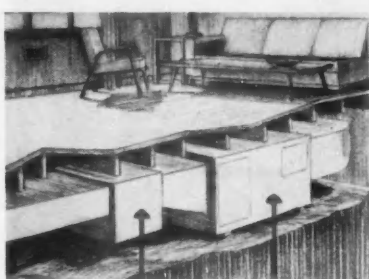
Choice of vertical or horizontal positioning permits unlimited combinations of FLEXI-COOL sections. Shown are three typical arrangements for obtaining the most efficient installations.



air conditioning design!

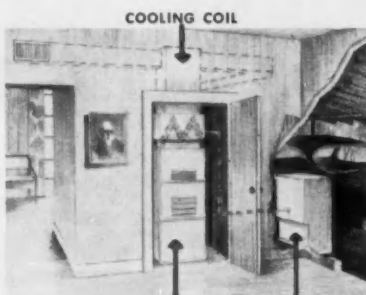
air conditioning line comes in
solves any commercial or residential job!

FLEXI-COOL FITS ANY SPACE



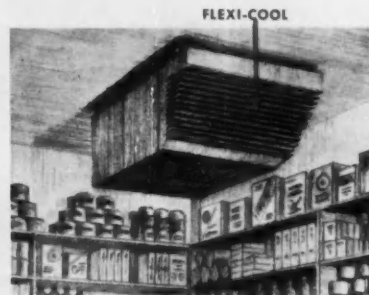
FLEXI-COOL FURNACE

Crawl space: Here, FLEXI-COOL hangs in horizontal position from floor joists, is easily connected into existing warm-air heating system.



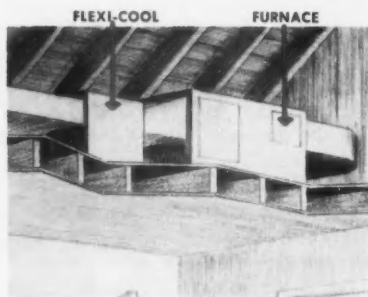
FURNACE AIR-COOLED CONDENSING UNIT

Outside the house: In this remote-type FLEXI-COOL installation, cooling coil in ductwork over furnace is connected to an outside air or water-cooled condensing unit.



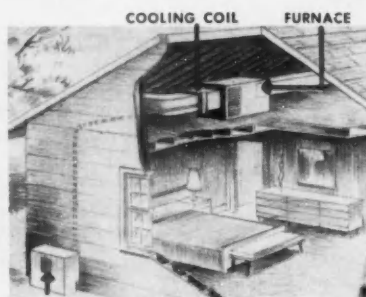
On a ceiling: FLEXI-COOL relieves valuable floor space for other duties by hanging from ceiling. Here, a desk or display counter can be added (or retained).

FLEXI-COOL MEETS ANY SITUATION



FLEXI-COOL FURNACE

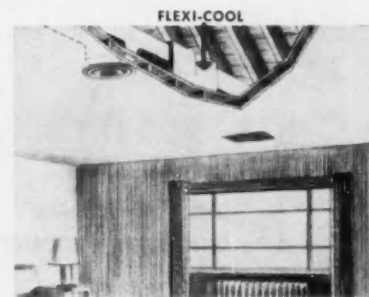
Dry heat: FLEXI-COOL cooling cycle can be connected to existing warm-air furnace, blower and filters.



COOLING COIL FURNACE

AIR-COOLED CONDENSING UNIT

Water-short area: Cooling coil installed in ductwork can be connected to waterless, electric air-cooled condensing unit.



FLEXI-COOL

Wet heat: With complete FLEXI-COOL unit installed in attic, inexpensive ducts along ceiling distribute cool air.

WORTHINGTON



CLIMATE ENGINEERS TO INDUSTRY, BUSINESS AND THE HOME



...and **COPPER**
clinched the deal!

HUSSEY

**COPPER ROOFING
AND DRAINAGE PRODUCTS**

Copper Sheet Metal
Rolled Copper Flashing Copper Eave Troughs
Roof Drainage Accessories
Majestic 3-Way Thru Wall
Copper Flashing
Copper Ridge Roll Copper Tubing
Copper Conductor Pipe Copper and Brass Pipe
Copper Nails

Extensive use of widely-known and widely-accepted COPPER sold the buyer on the dependability of other construction features in this house. As usual, Hussey Copper served as a hallmark of the builder's reliability.

For additional assurance of top quality in copper, always specify HUSSEY Copper—a leader in copper and brass products for over 100 years.

C. G. HUSSEY & CO.

(Division of Copper Range Co.)

**ROLLING MILLS AND GENERAL OFFICES
PITTSBURGH 19, PA.**

7 Convenient Warehouses to serve you

PITTSBURGH (19)
2850 Second Avenue
CLEVELAND (14)
5318 St. Clair Avenue
NEW YORK (13)
140 Sixth Avenue

CHICAGO (18)
3900 N. Elston Avenue
ST. LOUIS (1)
Central Terminal Bldg.
PHILADELPHIA (30)
1632 Fairmount Avenue

CINCINNATI (2)
424 Commercial Square

Rise in Housing Costs Predicted for 1956

A "MODERATE" increase in the cost of housing for the nation during 1956 has been predicted by Nathaniel H. Rogg, economist for the National Association of Home Builders. Prime among the reasons for this increase are the costs of money, land, wages and materials.

Mr. Rogg pointed out that although the cost of labor in the home building industry has increased 38 percent since January, 1950, and the cost of materials 27 percent, overall construction costs have risen 25 percent.

Air Moving Equipment Sales Rise 8 Percent

SALES OF air moving equipment increased during 1955, and the picture looks just as bright for this year, reports Robert W. Nelson, president of Air Moving and Conditioning Association, Inc. Sales increase for last year was eight percent over 1954 and another eight percent boost is predicted for 1956. These devices include centrifugal, propeller and axial fans and fan unit heaters.

Most potent factor for this boost in sales, Mr. Nelson reports, is an increase in building construction and emphasis on improved atmospheric conditions within occupied spaces.

Stainless Steel Production Hits All-Time High

AN ALL-TIME high for the production of stainless and heat resisting steels was experienced in 1955 with a boost of 40 percent over the production records for 1954, according to figures released by American Iron and Steel Institute. Production for the year was 1,191,177 net ingot tons, compared to 852,021 net tons for 1954.

SMCNA to Meet in Washington May 9-12

CONVENTION PLANS for the annual meeting of the Sheet Metal Contractors' National Association, Inc., have been completed. A program designed to give attention to as many phases of the industry as possible have been worked out. Every type of session used at conventions is on the program. Open forums, panel discussions and speakers on specific subjects are interspersed to achieve maximum benefit of the time. Meetings have been scheduled to avoid conflict between related subjects.

Contractors interested in curtain wall fabrication and erection will find the architectural sheet metal forums covering various types of metal building walls, new material for curtain wall panels, substitute materials and the progress being made in the development of sheet metal manual No. 5, "Metal Building Walls," of considerable interest.

Other contractors, who have been encountering difficulty in spelling out contract forms, will get valuable information from the proposal, bids and contract roundtable.

Those contractors specializing in industrial ventilation work will find out how the "other fellow" does it at the industrial ventilation conference where new developments in industrial work will be aired along with a review of new equipment and materials used in dust and fume removal.

Problems faced by specialty fabricators will be provided in a conference where production line methods will be discussed along with advice on how to set up a production shop. Additional information will be given on labor agreements for specialty fabricators.

A forum on warm air heating and cooling will cover the importance of a local code, how to get a code adopted,

Convention Data

Where—Washington, D.C.

Hotel—Shoreham

When—May 9-12

Who—Sheet Metal Contractors and Warm Air Dealers.
(Members and non-members)

revisions of existing codes, ordinances, licensing and registration; starting a certified warm air heating and cooling program; problems encountered in summer cooling sales; engineering, installing and servicing and new developments in the heating and cooling industry.

Employee vacation and welfare benefits will be treated in the welfare-vacation workshop where vaca-

(Continued on page 22)

Room Air Conditioner Sales Up 30 Percent

MORE THAN 1,300,000 room air conditioners were sold at the consumer level in 1955—an increase of better than 30 percent over the previous year, Room Air Conditioner Section of Air-Conditioning and Refrigeration Institute reports.

The association further reports the inventory in the hands of manufacturers and distributors on Dec. 31, 1955, was 49 percent less than a year ago. Sales planning to meet the 1956 season is indicated by the fact that January shipments by manufacturers was up 38 percent and by distributors up 23 percent, while inventory at the end of the month at this level was much lower than on the same date a year ago.

WHAT'S HAPPENING

Oil Heat Institute Program Committee Holds Meeting

PROGRAM COMMITTEE of the Oil Heat Institute Convention held a meeting recently at which time additional plans for the annual convention were discussed.

All sessions, roundtable and panel discussions and film showings will be held from 9:30 a.m. to 12:30 p.m. at the Park Sheraton. The committee also disclosed the exposition at the Coliseum will be open from 1 p.m. to 10 p.m. daily, June 11 to July 15, eliminating any attendance conflicts between exposition and convention.

Two distribution division sessions will be held in the mornings of June 13 and 14 in the ball room of the Park Sheraton, while a 13½ minute color television film will have its premiere at the June 13 morning session. Besides the showing of the TV film, at least eight of the 30 minute service and installation sound film strips now being prepared will be

shown for the first time. Another film, the 45 minute sound strip on management, accounting and degree day procedures, will also be shown at one of the distribution division sessions.

Also on the distribution division agenda is a series of discussions of subjects for roundtable or panel meetings. They are: tank failures, radio communication equipment, personnel selection, telephone procedures, promotion and advertising, service contracts and selling against competitive fuels. A registration fee will be required for a dealer to attend the convention sessions.

'Comfort' Test Runs Close To \$10 Per Month Target

AN ALL-YEAR comfort test, which is being determined now in a nationwide survey, will run close to a target figure of \$10 per month, according to the first progress report issued this week by the test sponsor. Houses of average size—1,200 square feet of air conditioned floor area—submitted so far for study from 11 cities, ranging from Minneapolis in the north to Jacksonville, Fla. and Phoenix, Ariz. in the south, indicate a predicted annual fuel and power cost of \$125.68 against the test target of \$120.

Coal-Fired Units Show 41% Boost for January

AUTOMATIC HARD COAL home heating units showed a sales increase of 41 percent for January over sales during the same period in 1955, according to Anthracite Institute figures. It was the 15th straight month sales topped those of the same period the previous year.

Skyscraper to Get Bronze Panel Wall

A 38 STORY building in which bronze will be used as the exterior wall material for the first time in building history is under construction in New York. The panels will be fabricated and erected by the General Bronze Corp. A. S. Saphier, president, said that 3,200,000 pounds of bronze will be needed to perform the job.

The decision to use bronze came after years of testing and research.

Fabrication of the bronze will entail 160,000 man hours of labor. Other interesting facts: if stretched end to end the wall panels would measure 104 miles, the vertical bronze mullions rising from the first floor to the summit would reach 11 miles in length.

SMCNA Holds Annual Meeting May 9-12

(Continued from page 21)

tion plans, welfare plan surpluses, trustee responsibility and other problems receive special attention.

One day, May 11, has been set aside for discussion of labor problems. Special guests will be members of the NJBSD (National Joint Board for Settlement of Jurisdictional Disputes) who will present some of the reasons for decisions handed down. Other problems both at national and local levels will be placed on the docket for discussion and clarification. Such subjects as legal matters in labor relations, area contracts and mechanical specialty contractors' responsibility will receive attention.

Special entertainment has been planned for the ladies attending the convention. Included on the program are a hat show, bus trip to Annapolis with a tour of the Naval Academy, and a tour of the White House and U. S. Capitol building.

Plastic Fabricating Data To Be Made Available

The Thermoplastic Structures Div. of the Society of the Plastics Industry will hold a one-day symposium at the Roosevelt hotel in New York on June 26. The meeting will begin at 9:30 a.m.

The symposium will be devoted to the presentation of technical and general papers of interest to sheet metal and plastics fabricators, architects and engineers. Talks and panel discussions will cover the application of corrosion resistant plastic materials in industrial structures such as hoods, vents, ducts, fumigating systems, storage tanks, tank liners and other allied products. Details for the symposium are being handled by the Society of the Plastics Industry, Inc., 67 W. 44th St., New York.



When Good Sellers Get Together!

RICHMOND BUDGETEERS

WINTER AIR CONDITIONERS GAS- AND OIL-FIRED MODELS

Here's a line-up of Richmond's Budgeteer Series—engineered to meet *all* customer demands for performance and economy. Gas or oil fired, with or without extended jackets, styles and sizes for all installation requirements from 70,000 to 140,000, BTU/Hr. capacities. You'll find just the unit that means customer satisfaction, generates word-of-mouth praise that leads to added sales.

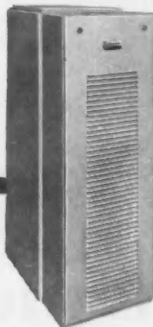
WRITE FOR FREE TECHNICAL BULLETINS!



GAS



OIL

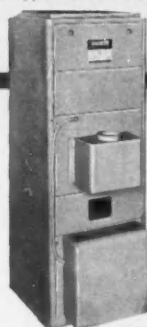


**EXTENDED
JACKET**

HIGH BOY For a variety of installations including small spaces such as closets or utility rooms. With or without extended jacket.

GAS: Type VG-36: 70,000, 90,000, 110,000 and 130,000 BTU/Hr. input. A.G.A. approved

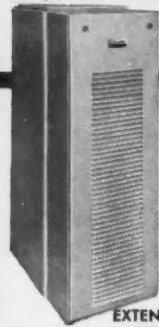
OIL: Type VO-71: 84,000 and 112,000 BTU/Hr. output at bonnet.



GAS



OIL



**EXTENDED
JACKET**

COUNTERFLOW For basement-less, slab type homes or any perimeter system. May be installed in closet or utility room. With or without extended jacket.

GAS: Type CG-46: 70,000, 90,000 and 110,000 BTU/Hr. input. A.G.A. approved

OIL: Type CO-81: 84,000 and 112,000 BTU/Hr. output at bonnet.



GAS



OIL

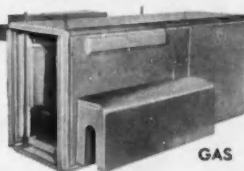


**EXTENDED
JACKET**

LOW BOY For a wide range of installations including full or half basement. With or without extended jacket.

GAS: Type LG-16: 70,000, 90,000 and 110,000 BTU/Hr. input. A.G.A. approved

OIL: Type LO-61: 84,000 and 112,000 BTU/Hr. output at bonnet.



GAS

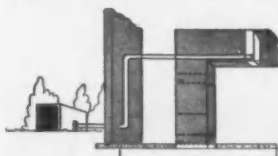


OIL

SUSPENDED-HORIZONTAL For attics, crawl spaces or suspension in utility rooms and basements.

GAS: Type AG-56: 60,000, 80,000, 100,000, 120,000 and 140,000 BTU/Hr. input. A.G.A. approved

OIL: Type AO-91: 84,000 and 112,000 BTU/Hr. output at bonnet.



RICHMOND WEATHER-AIRE CENTRAL COOLING

Air- and Water-Cooled, enclosed High Boy or evaporator type units available for use with all Richmond Budgeteers.

SHOWN: Evaporative cooler installed in warm air supply duct.



RICHMOND PLUMBING FIXTURES

Division of Rheem Manufacturing Company
16 Pearl Street, Metuchen, N. J.

Look to **RICHMOND** for a complete line—automatic heating—central summer cooling units.

Other Rheem Products: **WATER HEATERS • WATER SOFTENERS • WEDGEWOOD GAS RANGES AND CLOTHES DRYERS • STEEL AND FIBRE CONTAINERS**

R_x

DELUXE Units — at down-to-earth prices . . .
ONE, Complete Line — first quality all the way
through — with an unlimited selection of types
and capacities . . .

MOST Units approved to burn either Gas or Oil.

This is the LUXAIRE LINE, today's BIG BUY in
Heating and Air Conditioning! And here's why . . .

Thanks to step-ahead design, all Luxaire units
are excellent, uncomplicated units that are
sturdily constructed, easily installed, and

excell with superior trouble-free performance.

Thanks to sales leadership and to high volume
manufacturing, which is achieved with the most
modern facilities and methods, Luxaire units can
be priced to compete with the lowest.

You'll thank the day you contact your nearest
Luxaire jobber for prices, colorful sales literature
and ready service with the Luxaire unit you need,
when you need it.

Why postpone it?

Luxaire

Now More Complete

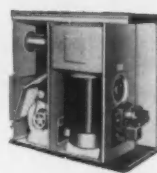
Counterflow Year
'Round Unit
Air or Water
Cooled 2 Ton
Air Cooled 3 Ton
Gas or Oil Fired



Air Cooled,
Add-On Summer
Air Conditioner.
Cooling Coil in
Discharge Duct
of Winter Air
Conditioner.
Remote Air
Condensing Unit.



2, 3 or 5 Ton Water
Cooled, Add-On
Summer Air Conditioner



Basement Type
Winter Air Conditioner
Gas or Oil Fired

5 TON Water
Cooled Year 'Round
Air Conditioner
Gas or Oil Fired



2 or 3 Ton Upflow
Year 'Round Air
Conditioner
Air or Water
Cooled
Gas or Oil Fired

More in Demand Than Ever!



Gravity Furnace
Gas Fired or
Oil Fired



Utility Type
Winter Air
Conditioner
Gas or Oil
Fired



Incinerator
High Input or
Dehydrator
Gas Fired and
without
Gas Burner



Gas Fired Unit Heater
5 Sizes for Complete
Range of Demand



Horizontal Furnace
4 Gas Fired Models
4 Oil Fired Models



Counterflow
Winter Air
Conditioning Unit
Gas or Oil Fired

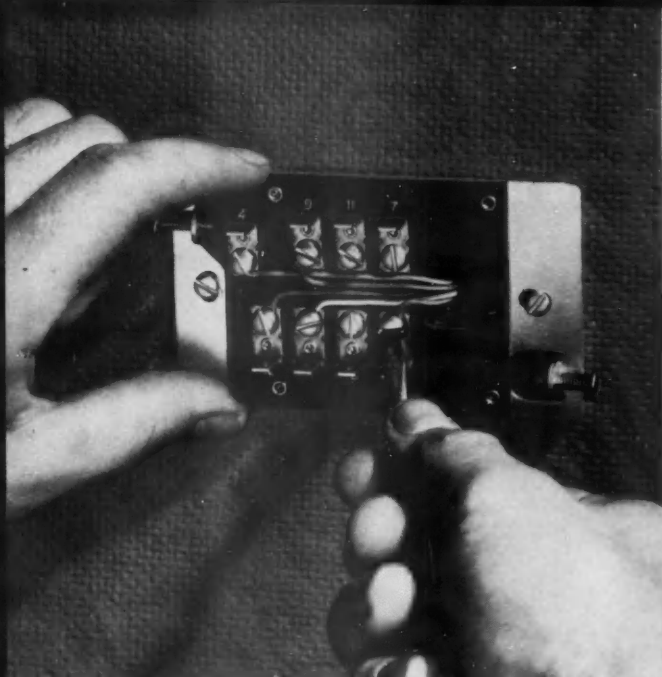
**The BIGGEST Sales-Making
Profit-Making Line in the
Business!**

There's No End to Your Profit Opportunity with Luxaire . . .

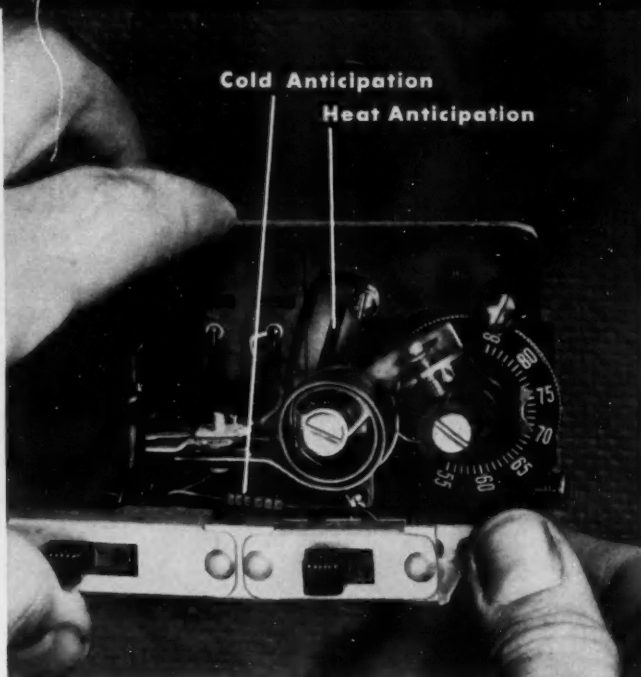
THE C. A. OLSEN MANUFACTURING COMPANY . . . ELYRIA, OHIO

Luxaire

HEATING & AIR CONDITIONING UNITS

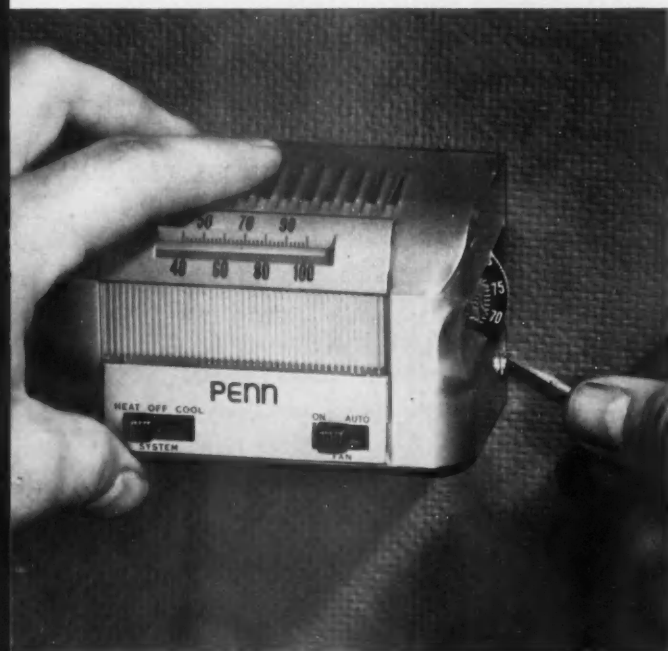


Separate Circuits: With its built-in separation of heating and cooling circuits, the Penn Series 880 meets all code requirements — without the extra cost of a heating relay.



Cold and Heat Anticipation: Penn maintains closer temperature control. Heat anticipation holds heat within one degree... cold anticipation limits cooling variation, keeps relative humidity low.

PENN HEATING and COOLING THERMOSTAT GIVES YOU 3 BIG SALES ADVANTAGES



Easy to Install: Just 3 simple steps. First, make all connections on mounting base. Then "push" thermostat on base and, third, place cover on thermostat.

No extra heating relays needed...
easier installation...and closer
control of temperatures make
Penn your best buy!

Yes, only Penn gives you all these sales advantages. Then, too, the Penn Series 880 embodies snap-acting magnet contacts, still best for long life and trouble-free operation. And, there are many other reasons why more and more manufacturers of packaged year-round air conditioning choose Penn Controls.

You can depend on Penn because every control is backed by more than 20 years of experience in designing and manufacturing both heating and cooling controls. So be sure that the year-round air conditioning systems you sell and install are equipped with Penn Controls.

PENN CONTROLS, INC.

Goshen, Indiana

Automatic Controls For Heating, Refrigeration, Air Conditioning,
Gas Appliances, Pumps, Air Compressors, Engines

VICTOROIL

**HEAVY DUTY OIL
HORIZONTAL UNIT**



The **DO-180S & DO-196S**

for

INDUSTRIAL & COMMERCIAL USE

Large Homes • Service Stations • Public Buildings • Big Jobs!

SAVE FLOOR SPACE

Install On or Under Floors • In Attics • Utility Rooms • Crawl Space



DG-200

**Series "D" COUNTER-FLO
for BIG JOBS Usually Requiring
2 Smaller Units. Delivers
160,000 BTUs at Bonnet**

Here's a pair of VICTORS to tie to! The big space-saving VICTOROIL HORIZONTAL unit delivering 180,000 and 196,000 BTUs is especially designed for small industrial, commercial and large home installation where floor space is at a premium or where attic or crawl space installation is desired.

The *busky* VICTOR series D-200 COUNTER-FLO is designed to complete your line by meeting the increasing demand for ONE powerful Counter-flo BIG enough for today's modern slab or ranch-type homes. They are VICTOR "FIN" constructed and are **WARRANTED FOR 15 YEARS!**

Mail Coupon TODAY!

HALL-NEAL FURNACE CO. 1322-42 N. CAPITOL AVENUE
INDIANAPOLIS 7, IND.

Gentlemen: Send full details on Series "D" Horizontal Oil ☐
Send full details on Series "D" Counter-Flo ☐

Name

Firm

City State



Washington Letter

Government Studies AC Fair Trade Rules

By Arnold Kruckman

RECOMMENDATIONS, IDEAS and suggestions for the formulation of fair trade rules for the air conditioning industry and the refrigeration industry continue to reach Federal Trade Commission Attorney H. Paul Butz. They go into the hopper for consideration in the study being made.

No one, either in or out of the commission at this time can forecast when the final result will be ready for publication. There is some reason to think publication will occur around the time the Sheet Metal Contractors National Association has its annual convention in Washington, D.C. at the Shoreham hotel May 9-12.

Mr. Butz and the members of the Federal Trade Commission apparently have been considering three ways of incorporating the fair trade rules into the trade practice formula to cover the two industries. They realize, they say, that there is a very definite difference between the two industries. They have considered the publication of the rules to cover both industries without specific differentiation in the document that is to be issued. In the second instance they have given thought to publishing rules for the air conditioning industry, and a separate set of rules to apply solely to the refrigeration industry. The third alternative is to publish the fair practice rules in one document but to recognize each separate industry in this document

and to supply the rules for each industry in the publication. In other words, to publish only one overall set of basic rules, in one overall document.

However, each industry will be recognized as separate and distinct, with its own problems and its own needs that must be provided for in the proposed set of rules, according to the FTC. The industries will get what they want in the way of distinct separate recognition in the rules that are formulated, but the rules will be published in the same document.

Apparently, so far as present indications reveal, this is what the Federal Trade Commission will do in publishing the fair trade practice rules for the air conditioning and refrigeration industries. It means that those phases which are absolutely identical will be discussed and formulated as an identical subject and ruling, and the phases about which the industries have differed will be covered separately.

AS IS WELL known, President Eisenhower, in his message to Congress, suggested that Congress should provide standby credit controls. The idea was that these controls should be immediately available in case of any emergency when they might be needed.

Congress has done nothing about these suggestions, and apparently has given them very little attention in any discussions. Most of the members of Congress have only the vaguest ideas in regard to what might be necessary if standby credit controls were to be provided. There are so many other pressing and urgent problems that this is one that has had the attention only of those who are technical specialists in relation to credit and money. It has also interested a few Congressmen who think there is a threat of war in various quarters, such as Israel and the Arab nations; and the possibility of an explosion involving Formosa and Red China. There is still another group slightly apprehensive about what may happen due to the extraordinary business boom in Europe.

Many administrative technicians in Washington, and the students of credit and finance in government, are opposed to standby credit controls at this time.

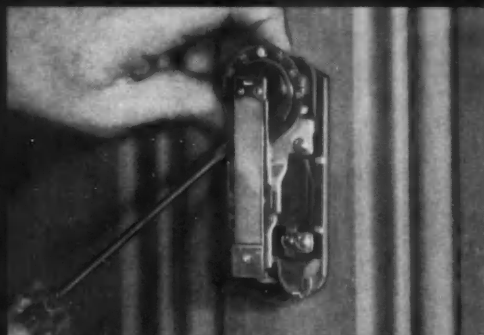
The Federal Reserve Bank Board in Washington is also opposed to immediate standby credit controls. Its spokesmen point out that the essential study to formulate the controls will take from eight to ten months. As a matter of fact, the study has hardly started. Federal Reserve Bank Board chairman, William McChesney Martin, Jr., is supported in his stand by Secretary of the Treasury George M. Humphrey. The

(Continued on page 30)

G-E Room Thermostats Feature Faster Installation, Finger-tip



G-E THERMOSTAT



QUICK MOUNTING and wiring of G-E room thermostat keeps on-the-job time to a minimum. Two screws secure base, operating unit slides on, attractive cover snaps in place, and the job is done.

Modern Design, Adjustments

What a thermostat!

You can calibrate it in the living room with a simple finger-tip adjustment. You can pick the preheat resistor to give your customer a tailor-made installation suitable to the current of his specific control circuit.

You can wire it without fear of damaging the element, as the element is detachable for protection during installation. After the base is fastened and wired to the circuit, the element slips easily into position.

You can proudly tell your customer that General Electric thermostats have established a record of high accuracy in performance through quality and simplicity of design. You can also assure your customer that with factory-calibrated G-E controls, numerous call backs for service and adjustments are not necessary.

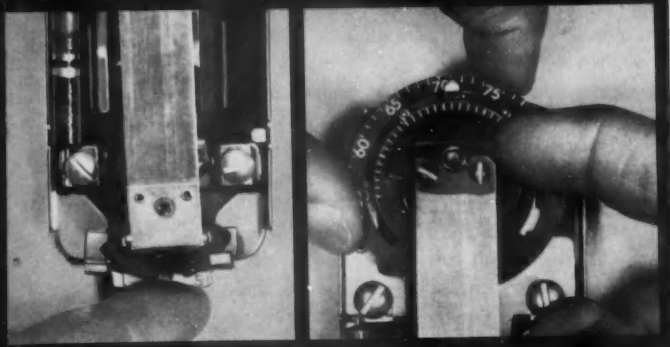
ASK ABOUT THIS PLAN

In addition, General Electric thermostats are available to you through G.E.'s unique Heating Control Exchange Plan. Through this plan, which offers both a price and time advantage, you can exchange any make of an inoperative heating control for newly reconditioned G-E equipment. Pick your nearest G-E Servicing Distributor from the handy list at the right, and contact him for free details and information. He will handle your order for new G-E controls, or exchange a G-E control for your present inoperative equipment, with courtesy and dispatch. Contact him right now; it will mean more profit for you and better controls for your customers. General Electric Company, Schenectady 5, N. Y.

740-96

GENERAL ELECTRIC

MOUNTS IN MINUTES!



TWO SIMPLE ADJUSTMENTS assure heating accuracy and cut nuisance complaints and unprofitable call backs. Comfort dial at bottom sets cycling time and calibration is accomplished, if needed, by merely rotating the inner section of the upper dial plate with a finger tip.

PICK YOUR LOCAL G-E DISTRIBUTOR FROM THIS NATIONWIDE LIST*

ALBANY, N. Y.
Cert. Fuel Unit Service Co.
Colonial Heating Equip. Co.

ALLENSTOWN, PA.
Sid Harvey, Inc.

ARLINGTON, VA.
Sid Harvey, Inc.

AUBURN, N. Y.
Road Utilities, Inc.

AURORA, ILL.
Scott Wood & Metal, Inc.

BALTIMORE, MD.
Sid Harvey, Inc.

BATTLE CREEK, MICH.
Columbia Metal Service

BLOOMINGTON, ILL.
MaGirl Foundry & Furnace Co.

BOISE, IDA.
Oil Burner Pts. & Sup. Co.

BOSTON, MASS. Area
Cranin Supply Co.
F. W. Foley Co.
Sid Harvey, Inc.

BROCKTON, MASS.
Metro Supply Co.
Mattapan Supply Co.

BUFFALO, N. Y.
Rochester Oil Burning System

BURLINGTON, N. C.
Alley & Rader Services

CALDWELL, N. J.
Cent. States Supply Co.

CHARLOTTE, N. C.
Burner Supply Corp.

CHESTER, PA.
Hepco, Inc.

CHICAGO, ILL.
Robert Barclay, Inc.
Place Brothers
C. E. Sundberg Co.

CINCINNATI, OHIO
F. E. Winstel Co.

CLEVELAND, OHIO
Ohio Pump Service Co.

COLUMBUS, OHIO
Columbus Auto. Sprayer Co.

DAVENPORT, IOWA
Republic Electric Co.

DECATUR, GA.
Rayheat Equip. Co.

DES MOINES, IOWA
Dennis Supply Co.
Heating Wholesalers Co.

DETROIT, MICH.
Aca Supply Co.
Hydraulics Pump & Repair
National Furnace & Sheet Metal Co.
Pelton Distributing Co.

EDGEWATER, N. J.
Koon & Company

ELIZABETH, N. J.
Cert. Fuel Unit Service Co.

EVANSVILLE, IND.
Swanson-Nunn Elec. Co.

FITCHBURG, MASS.
Heat Inc.

FLINT, MICH.
Moore Bros. Elec. Co.

FORT WAYNE, IND.
Tri-State Mtg. Supply, Inc.

GARY, IND.
G. W. Berkheimer Co., Inc.

GRAND RAPIDS, MICH.
Mich. Auto Mtg. Equip. Co., Inc.

GREEN BAY, WISC.
Beemster Elec. Co.

HARRISBURG, PA.
Fuel Savers, Inc.

HARTFORD, CONN.
Sid Harvey, Inc.

HAWTHORNE, N. J.
Univ. Eng'g Co.

INDIANAPOLIS, IND.
G. W. Berkheimer Co., Inc.

JACKSON, MICH.
Leo A. Tilford, Inc.

KALAMAZOO, MICH.
Associated Supply Co.

KANSAS CITY, MO.
Chas. D. Jones Co., Inc.

LANSING, MICH.
Superior Supply Co.

LOUISVILLE, KY.
Contractors Sy. Co.

MADISON, WISC.
Marine Elec. Co.

MALDEN, MASS.
Wisconsin Mtg. Equip.

MERCHANTSVILLE, N. J.
Oil Heat. Dist. Inc.

MILWAUKEE, WISC.
Cert. Fuel Unit Service
Sid Harvey, Inc.
Refrigeration Parts Co., Inc.
Heating Parts Exch., Inc.

MINNEAPOLIS, MINN.
Wholesale Mtg. & Sup. Co.

MORRISTOWN, N. J.
Amber Oil Burner Sup. Co.

NEW HAVEN, CONN.
A. R. Webber Co., Inc.

NEWARK, N. J.
Cert. Fuel Unit Service Co.
Sid Harvey, Inc.

NEW YORK CITY, N. Y. Area
Sid Harvey, Inc.
Michael & Goldberg Plbg. & Htg. Inc.
Radiant Burner Supply Corp.
Atlantic Burner Supply Co., Inc.

NORFOLK, VA.
Sid Harvey, Inc.

NUTLEY, N. J.
Nutley Oil Burner Supply & Tool Co.

OKLAHOMA CITY, OKLA.
Waugh Bros. Sup. Co.

OMAHA, NEBR.
Dennis Supply Co.

ORLANDO, FLA.
Industrial Equip. Co.

PASSAIC, N. J.
Sid Harvey, Inc.

PEORIA, ILL.
Htg. Supply & Service Co.

PHILADELPHIA, PA.
Cert. Fuel Unit Service Co.
Girard Supply Corp.
Sid Harvey, Inc.

PORTLAND, OREGON
McPherson Furnace & Supply Co.

PROVIDENCE, R. I.
Rhode Island Fuel Pump Service Co., Inc.

QUINCY, ILL.
Sid Harvey, Inc.

READING, PA.
McDonald Stove Co.

RICHMOND, VA.
Sid Harvey, Inc.

RICHMOND, VA.
R. E. Michel Co., Inc.
Refrigeration Supply Co.

ROANOKE, VA.
Southern Refrigeration Corp.

ROCHESTER, N. Y.
Rochester Oil Burning System

ROCKFORD, ILL.
Oil Heat Parts

SAGINAW, MICH.
Reichle Supply Co.

SCHENECTADY, N. Y.
LeValley McLeod Inc.

SEATTLE, WASH.
McPherson Furnace & Equip. Co.

SIOUX CITY, IOWA
Dennis Supply Co.

SOUTH BEND, IND.
Heating Wholesalers Co.

STERLING, ILL.
Kontz-Wagner Elec. Co.

SPokane, WASHINGTON
Crescent Elec. Sup. Co.

SPRINGFIELD, MASS.
McPherson Furnace & Equip. Co.

STELTON, N. J.
Gray Supply Co.

SYRACUSE, N. Y.
Sid Harvey, Inc.

THOMASVILLE, GA.
Industrial Equipment Co.

TOLEDO, OHIO
Fry Furnace Co.

TRAPPE, PA.
Jacob H. Bowers Co.

TRENTON, N. J.
Lincoln Supply Co.

TROY, N. Y.
Century Supply Co.

UNION CITY, N. J.
Sid Harvey, Inc.

UTICA, N. Y.
Road Utilities Co.

VINELAND, N. J.
Hepco, Inc.

WASHINGTON, D. C.
Sid Harvey, Inc.

WATERLOO, IOWA
R. E. Michel Co., Inc.

WICHITA, KAN.
Heating & Cooling Supply Co.
Heating Wholesalers Co.

WILMINGTON, DEL.
Superior Sup. Co.

WOODBURY, N. J.
Greenburg Supply Co.

WORCESTER, MASS.
Sid Harvey, Inc.

YORK, PA.
John W. Walsh, Inc.

ZION, ILL.
Mid-Way Supply Co.

* This list is continually being expanded to supply you with even greater G-E heating control service.



Pick the Unit Heater with the heart of *Aluminized Steel*. Pick Carrier!

Carrier uses heat exchangers of 16-gauge aluminized steel. Welds it into a one-piece, rugged, gas-tight assembly.

The fused alloy has a far better resistance to heat and corrosion than either aluminum or steel—even above the melting point of aluminum (1200-1400° F). Tests have shown that aluminized steel heat exchangers last longer than those made of ceramic coated metals.

Long-lasting Carrier Unit Heaters come in seven sizes—50,000 to 230,000 Btu/hr. Gas-fired duct furnaces are also available in seven sizes—70,000 to 230,000 Btu/hr. Look in the Classified Telephone Directory for the name of your jobber-distributor.

Carrier Knows Heating! Over 50 years of leadership in air conditioning have given Carrier unmatched experience in temperature control—heating and cooling! Carrier Corporation, Syracuse, New York.



air conditioning • refrigeration
industrial heating

WASHINGTON LETTER —

(Continued from page 21)

National Foundation for Consumer Credit, Inc., one of the powerful influences in any discussion about credit, is vigorously opposed to standby credit controls. On the other hand, the AFL-CIO has urged some form of credit controls.

DISCUSSION OF CREDIT development in government quarters emphasized that January and February brought an easier feel to the market for borrowed money. The Federal Reserve Banks sold Treasury bills on the usual heavy scale to absorb funds gained by the banks from seasonal return flow of currency. The Federal Reserve Banks did not attempt to redevelop the full pressure the banks had experienced in November.

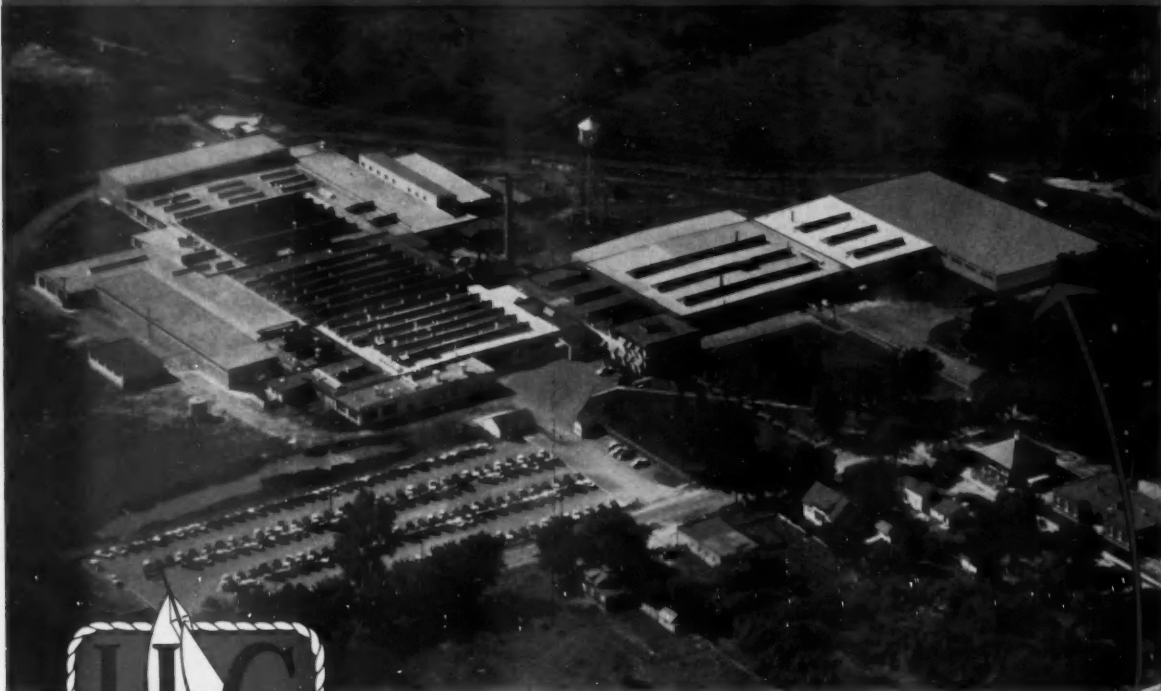
The Federal Reserve let January pass without a further discount rate advance. There had been a wide-spread anticipation that there would be such action, and this expectation held the market under restraint around the year end. Bond prices rose strongly in January and the first half of February, which brought out increased offerings. Discounts on FHA and VA mortgages have narrowed and conventional loans are generally in better supply. Business loans declined less than usual for this time of the year.

The discussion particularly emphasized that no present sign indicated an easier Federal Reserve credit policy is needed to support business. We are told that considering the heavy volume of business being carried on, the record-high levels of production costs have created a situation where credit demands could hardly be anything but strong.

THE FINANCIAL TECHNICIANS in the federal government state that the President's willingness to run for a second term has bolstered confidence in the present administration with regard to business. It is pointed out the new year appears to be carrying on where the old year left off with little change in the high rate of business activity. They tell us the long rise in overall production and trade evidently has come to a halting point, but there are few indications of decline. Industrial production, retail sales and construction work in January are reported to be about the same as in December, and the highest for any January in history.

Industrial production has held at a record high since last October. Retail sales have moved sideways for the same length of time. The stability of these and other comprehensive measures, however, does not signify a standstill in business. It is said to conceal adjustment of output in individual lines, shifts in markets, and changes in inventory and order positions. The principal curtailment has been in passenger car output.

TO SERVE YOU **BETTER!**



ADDS 30,000 SQ. FT. OF FLOOR SPACE FOR FINISHED GOODS STOCK EXPANSION

Service to our customers is one of the principal functions of our business.

In order to keep pace with the increase in our volume of business we have constructed a new 30,000 sq. ft. addition to our finished goods warehouse. This additional floor space is devoted entirely to an increased inventory of finished stocks of standard items which will enable us to continue to furnish the kind of deliveries our customers have always appreciated so much. With this addition the H & C plant will contain 300,000 sq. ft. of floor space . . . the largest plant in the world devoted to the manufacture of registers, grilles and diffusers exclusively . . . which reflects the fact that most folks in the trade prefer H & C products and services.

For complete details see your H & C Jobber or our current catalog "A".

You, too, we believe, will find in H & C your preferred source of registers, grilles and diffusers.

HART & COOLEY MANUFACTURING CO.

IN CANADA: HART & COOLEY MANUFACTURING CO. FORT ERIE, ONTARIO

500 EAST EIGHTH ST.,
HOLLAND, MICH.

PRODUCT OF THE WORLD'S LARGEST and MOST PROGRESSIVE PRODUCERS OF REGISTERS and GRILLES

the filter with features worth repeating!

• more profit

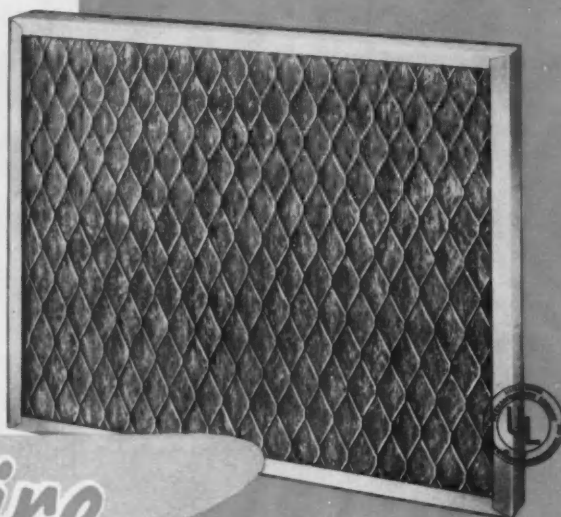
on per-unit sales with a solid demand already established.

• faster turnover

a real volume-builder that sells the growing "change-over" market.

• easier servicing

eliminates nuisance service calls; saves time and material costs.



A-LUM-O-AIRE

PERMANENT, DRY-TYPE FILTERS

All standard sizes in 1/2", 1" and 2" widths. Special sizes to order.

features that help you sell

Here's the filter that's **BIG NEWS** in the air-conditioning and warm-air heating industry. All-metal "lifetime" construction. Absolutely rustproof and fireproof. Clean, safe, economical. No messy oils or adhesives required.

prospects a-plenty!

Everyone in town who owns a warm-air furnace or air-conditioner is your potential customer. One friend tells another — and you make another sale!

washes clean with water

Simplifies routine servicing; reduces time-wasting "callbacks". No mess to clean up — no extra weight to carry. So simple a child could do it!

New sales aids, streamers and displays now ready for your 1956 advertising and promotional needs.



Flushes clean in a jiffy with cold water from hose or faucet. No oils to add. Just wash and replace. Never rusts; no fire or smoke problem. Cleans air safely for better health.

Photomicrograph of aluminum wool media showing contour of tiny barbs which catch and hold even the most minute particles of lint, dust and dirt. Copper media also available for commercial and industrial requirements.



Housewives appreciate savings in dusting and cleaning tasks. No greasy film to settle on walls, windows and furniture. Some even make filter cleaning a part of regular housecleaning chores.

METAL WOOL DIVISION

CAREY

ELECTRONIC
ENGINEERING CO.

SPRINGFIELD, OHIO

"world's largest manufacturers aluminum and copper wool"

Metal Wool Division Dept. A4
Carey Electronic Engineering Co.
1880 Clifton Avenue
Springfield, Ohio

☐ dealer

☐ distributor

Gentlemen:

I want to know how I can improve my filter merchandising activities. Send me prices and details on A-LUM-O-AIRE.

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

Attention Distributors: Exclusive territories in selected areas still available to qualified outlets. Write for complete details, today!

WASHINGTON LETTER —

In December the Home Loan Bank Board arranged to make as much as \$1 billion in standby credit available to Federal Savings and Loan Associations. In January, the Veterans Administration and Federal Housing Administration extended maximum maturities on mortgages guaranteed or insured by them from twenty-five to thirty years, reversing their action of last July. The Federal National Mortgage Association opened facilities for "warehousing" mortgages. Funds available for investment and mortgages are less tight. In both government and private building circles the consensus is that the number of units started in 1956 should exceed 1,200,000 which is better than last year's rate.

In general, Washington feels business confidence remains high. Within the past month the steel, automobile, and other important industries have announced plans for expansion and modernization running into billions of dollars. The managements of these large firms are willing to put huge sums into new plants and equipment, looking for a prosperous and profitable economy in which to sell the goods these facilities will produce.

Commerce Secretary Weeks also supports the Federal Reserve Bank Board in its opinion that standby credit controls are not necessary. His Office of Business Economics reports total residential mortgage and consumer debt outstanding at the end of last year amounted to \$125 billion, or about \$19.5 billion more than at the end of 1954. New residential non-farm construction in 1955 approximated \$16.5 billion, \$3 billion more than in 1954. Consumer expenditures for durable goods totaled about \$35.5 billion.

One of the major changes in the borrowing picture of 1955 reflected the stepped-up demand for consumer durable goods. Total installment credit, used principally in buying of consumer durables, amounted to over \$27.5 billion at the end of 1955, an increase of roughly \$5.5 billion during the year.

For dependable water level control use MAID-O'-MIST FLOAT CONTROL VALVES

Thrifty answer to limited space in
HUMIDIFIERS
PAN FILLERS
AIR CONDITIONERS
AIR WASHERS



No. 51

FAMOUS No. 50 SERIES

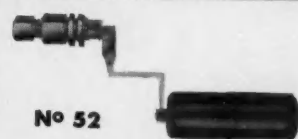
Compact, precision-designed, you can count on MAID-O'-MIST float control valves to effectively meet your water-level control requirements. An acknowledged leader in its advanced engineering, they give faithful performance.

No. 51 FLOAT CONTROL VALVE

Only 5 3/4" long overall, including copper float 2 1/8" in diameter x 1 1/4" deep. Stem and body made of brass . . . valve seat of hard nylon, protected with fine metal screen. Can be fitted in 9/16" hole or screwed directly into tapped opening. Up to 85 lbs. pressure; 1/2 gal. per minute at 50 lb. pressure.

No. 52

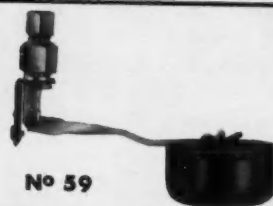
Similar to No. 51, but designed for 1 gal. per minute capacity at 50 lbs. pressure, with pressures to 125 lbs. Overall length, 8", with 1 1/2" x 4 1/8" long float.



No. 52

No. 59

Valve is vertically mounted with special bracket to mount on reservoir or pan well above water line. Just 5" long.



No. 59

No. 6917

Series Diaphragm Valves

Heavy duty, large capacity water level controls, rugged and strong. Capacities 1 1/4 gal. to 6 gal. per minute.



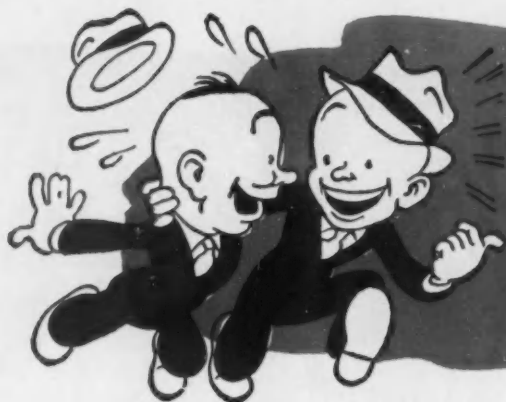
No. 6917

Get full information from your jobber or write for catalog today!



MAID-O'-MIST, Inc.

3217 NORTH PULASKI ROAD · CHICAGO 41, ILL.



**Idea Exchange
for
Dealers, Contractors**

Materials Rack Saves Shop Storage Space

STORAGE OF the many materials used in a sheet metal shop for fabricating the variety of products required by customers is a problem long faced by the sheet metal contractor. Much of the material requiring storage is heavy, and the many different sizes make most storage bins bulky and space consuming. One contractor who has found a solution to the storage of angle iron, channels, rods and bands is Harry Quade, Jr., manager, Wm. Schupp & Co., Minneapolis.

The accompanying photo presents a front view of the storage rack. The rack stands 8 ft high with racks facing each other and two rows of bins for light weight materials above the arch, which is 6 ft wide. The left side with nine racks is 20 ft long. This side is used to store all sizes of angle iron and small channels. The heaviest piece of material stored here is a 20 ft length of $3 \times \frac{1}{4}$ in. angle iron.

Shear Installed on Front

To facilitate the cutting and shearing of angle iron, a manually operated angle iron shear has been installed in front at the left side and aligned with a guide channel that permits the sheet metal worker to select the piece of material needed, lower or raise it a minimum distance to the shear, measure the length required and set the marked section in its proper position in the shear for cutting. The largest size angle



ANGLE IRON and channel storage rack saves time, space and material when accessibility and convenience are incorporated into the design

iron cut with the shear is $2 \times 2 \times \frac{1}{8}$ in. Larger sizes are cut in a mechanical hack saw placed about 2 ft ahead of the manual shear.

The right side of the storage rack contains 10 shelves and is 16 ft long. Various sizes of band material are stored on this side. Band ma-

terials being lighter in weight are easily lifted to the guide channel for shearing to desired lengths.

The vertical supports for the racks can be fabricated from any heavy gage steel if the contractor decides to fabricate his own. Vertical supports along the sides should be placed not farther than 4 ft apart and the arms for racks and shelves should be supported from beneath. The materials used to erect the storage rack installed in the Schupp company's shop were purchased from a commercial supplier of shelving materials. (The name of the commercial supplier can be obtained by writing the editor.)

**Tell Others About Your
Successful Ideas**
by writing to:
**Editor, American Artisan,
6 N. Michigan Ave.,
Chicago 2, Illinois.**

5 pages of **AIR CONDITIONING HISTORY-IN-THE MAKING!**

REVEALING RICH NEW
PROFIT OPPORTUNITIES FOR
AMERICAN-Standard
AIR CONDITIONING DEALERS

1

THE GREATEST NAME IN HEATING BRINGS YOU
YOUR BEST DEAL IN COOLING, TOO!



AMERICAN-Standard AIR CONDITIONING DIVISION

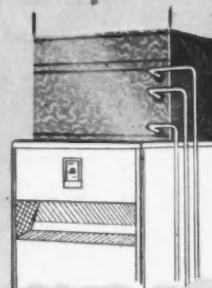
ELYRIA, OHIO

**TOP QUALITY UNITS
FOR ALL
RESIDENTIAL AND
COMMERCIAL JOBS**

*See Your Local
Distributor for
Complete Details*



**OUTDOOR AIR-COOLED
CONDENSING UNIT PLUS YEAR 'ROUND
AIR CONDITIONER**
2, 3 or 5 HP. Gas or Oil Fired

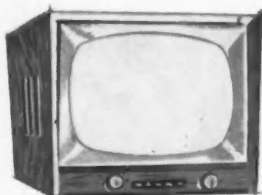


**OR VERTICAL AIR-FLOW
EVAPORATOR**

WATERLESS AIR-COOLED UNITS...



NEWSPAPER AD MATS



1-MINUTE TV FILMED
COMMERCIALS

*Liberal cooperative advertising plan
covering newspaper space . . . radio and TV time . . .
home show exhibit space*



HOME AND BUILDING
SHOW EXHIBITS



1-MINUTE RADIO
COMMERCIALS



ENVELOPE STUFFERS



YEAR 'ROUND AIR
CONDITIONING BOOKLETS

3

**YOUR BEST DEAL FOR
COMPLETE-LINE SELLING**

AMERICAN-Standard

AIR CONDITIONING DIVISION

ELYRIA, OHIO

"How we Air Conditioned our
entire
house..."



1. REMOVED OBSTACLES



2. YOU CAN BUY

AIR

Here's how to
AIR CONDITION EVERY ROOM
without ripping your house apart



1. **LOOK AT YOUR FURNACE.** If it's a fairly modern forced air unit, all you need is an American-Standard add-on air conditioner in each room to cool comfort in every part of your house. Furnace unit. Replaces with an American-Standard cool room model.



2. **ONE "PACKAGE" IS ALL YOU NEED.** American-Standard air conditioners are factory assembled for easy installation next to your furnace or wherever you have a few square feet of space. Air cooled type unit - no indoor space - goes outside the house.

Now the greatest name in HEATING
is your greatest buy in COOLING...

AMERICAN-Standard
AIR CONDITIONING DIVISION



3. **SEE YOUR**
Standard
charge and
either way

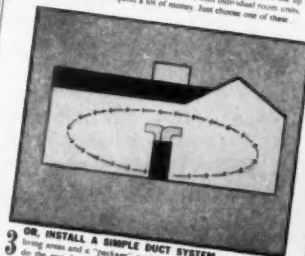


4. **PER**
Part
- all
unit

Use your Furnace to **COOL**
your Entire house!



1. **IF YOUR HOUSE HAS HEATING DUCTS** you already own a good part of a central air conditioning system. No need to use up floor space or disfigure your windows with individual room units. And no need to spend a lot of money. Just choose one of these:



2. **OR, INSTALL A SIMPLE DUCT SYSTEM** in the main living area and a "package" model American-Standard unit will do the rest. It cools, dehumidifies, filters, and circulates the air automatically. You feel your best and fully enjoy your home.

Now the greatest name in HEATING
is your greatest buy in COOLING...

AMERICAN-Standard
AIR CONDITIONING DIVISION



3. **COMPACT, ADD-ON COOLING UNITS** engineered by American-Standard for easy connection to furnace ductwork or basement, utility room, crawl space or attic. Design permits use of existing furnace flues for summer air distribution to every room.



4. **WATER SUPPLY? NO PROBLEM!** The American-Standard air-cooled model requires no water - uses only electricity and air. In hot climates, it saves indoor space, too. Even in hottest weather it keeps your entire house refreshingly cool.

MAIL
COUPON
TO:

American-Standard Air Conditioning Division
40 Wall Street, New York 12, N. Y.

☐ Please send American-Standard Year-Round Air Conditioning booklet and complete specification sheets as soon as available. Enclosed is 10¢ to cover cost of handling.

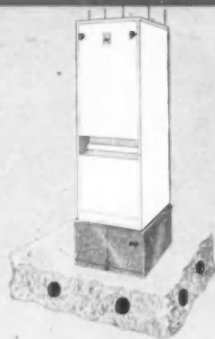
Name _____
Street _____
City _____ State _____

Full page, 4-color and black and white ads like these will reach millions of home owners this Spring through leading home magazines. Note the headline approach featuring easy, low cost add-on cooling... and the picture-caption technique which tells the complete air conditioning story in quick, non-technical language. The coupon is a standard element. Leads will be forwarded to American-Standard Air Conditioning dealers.

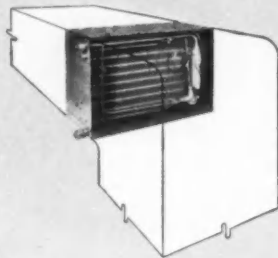
2

YOUR BEST DEAL ON...
NATIONAL ADVERTISING SUPPORT

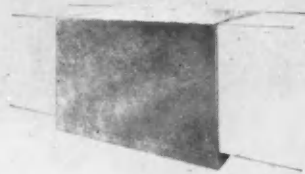
FAMOUS NAME AND FULL



OR COUNTERFLOW
EVAPORATOR



OR HORIZONTAL
EVAPORATOR



OR BLOWER-EQUIPPED
EVAPORATOR



**WATER-COOLED
RESIDENTIAL
ADD-ON UNITS**

FOR ALL TYPES OF INSTALLATIONS

WAT



**EASY-REFERENCE CATALOG SHEETS
AND PRODUCT SPECIFICATIONS**



**GIANT 22" BY 26" SELF-MAILER
OR WALL POSTER**



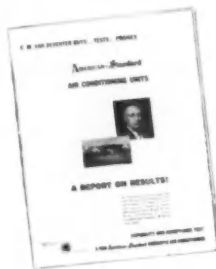
**8" and 12"
WINDOW DECALS**



34" W

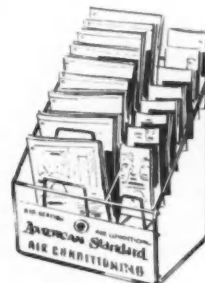


**AIR CONDITIONING FOLDER
—COMMERCIAL MODELS**



**TESTIMONIAL BOOKLET;
AN ENGINEER BUYS AND SCIENTIFICALLY
TESTS AMERICAN-STANDARD COOLING**

LITERATURE RACK



DEALE

4

**YOUR BEST DEAL ON
LOCAL ADVERTISING & PROMOTION**

L LINE

simplify your selling



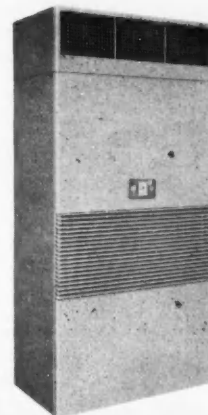
**WATER-COOLED
RESIDENTIAL
PACKAGE UNITS**



**WATER-COOLED YEAR-
ROUND PACKAGE UNITS**
Gas or Oil Fired



**WATER-COOLED
HORIZONTAL
ADD-ON UNITS**



**WATER-COOLED
COMMERCIAL
PACKAGE UNITS**

WATER-COOLED UNITS... ALL MODELS... ALL SIZES



**FOUR-COLOR
3" WINDOW STREAMERS**



**48" DOUBLE-FACED,
ILLUMINATED OUTDOOR SIGN**



37" ILLUMINATED WINDOW SIGN



36" OUTDOOR METAL SIGN



**6" "INSTALLED HERE"
SIGNS**



**TELEPHONE DIRECTORY
TRADE MARK HEADINGS**

**DEALER MATCH BOOKS
—IMPRINTED**

5

**YOUR BEST DEAL ON
DEALER IDENTIFICATION**

Glamorous New York City has more of everything in June — even birds and bees on flowers and trees in bloom. Ask your wife to bring you to New York in Spring-time. Be sure to come. For you, there will be plenty of attractions at the exposition and convention. For her, a melody of shows, sightseeing and shopping. All-in-all, a proper setting for a great occasion for you both with all the inspiration of the great city at work or at play during your stay.

Your industry show is at the gorgeous, new \$35 million Coliseum. No admission charge for industry people. Quick registration in the first floor lobby from which escalators and elevators whisk you to a 70,000 sq. ft. area studded with displays by industry leaders. Come, see and learn about new products and services. Special attraction: an auditorium where technical-service and sound-slide films have first-time showing. Show hours: 1 to 10 P.M. Monday thru Thursday; 1 to 6 P.M. Friday.

*combine
business and
pleasure
at the*

21st NATIONAL

Oil Heat *and*

**AIR CONDITIONING
EXPOSITION**

The New, New York City

COLISEUM

JUNE 11-15, 1956



Address Space Reservation Inquiries To The Sponsor

OIL-HEAT INSTITUTE OF AMERICA, INC.

500 FIFTH AVENUE, NEW YORK 36, NEW YORK...LOngacre 4-3755

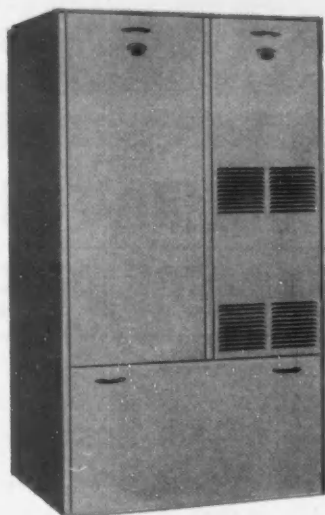


Management Conferences: You are invited! Sponsorship is by the 34th Annual OHI Convention. Place: Park Sheraton Hotel within a block of the Coliseum. OHI business meetings Monday. Manufacturer sessions Tuesday. Dealer-Industry sessions Wednesday and Thursday. The new color TV film will have its premiere Wednesday; new service-installation sound films and one on accounting and degree days on Thursday. Panels and round table subjects include home cooling, radio communication, automatic deliveries, service contracts, sales, advertising and promotion. Successful dealers lead discussions. One new practical idea will more than pay for your trip. All sessions 9:30-12:00 A.M. Registration only \$1.

Entertainment Galore: Tickets will be made available for you, the wife and family for TV and radio and fashion shows, theatres, sight-seeing trips, night clubs etc., all at regular and not "scalper" prices. Tickets will be on sale at the Ladies Lobby on the Mezzanine Floor of the Park Sheraton.

Make hotel reservations now: Write Miss Sylvia Peltonen, Mgr. Housing Bureau, 90 E. 42nd St., New York 17. Twenty hotels have blocked off 3600 rooms. Singles \$6-\$9; doubles \$8-\$20; also suites. Tell her you're coming to the Oil Heat Exposition, accommodations desired, price range, time of arrival and departure. Confirmation will be sent you. Better write today!

SHARP POINT! WEATHERAMIC SALES APPEAL



HEATING-COOLING COMBINATION

UTILITY APPLIANCE CORP.

Manufacturers of
Utility Furnaces,
Air Coolers,
Air Conditioners,
Water Heaters and
Gaffers & Sattler
and Occidental
Gas Ranges

To make a penetrating selling point long before you get to the feature story, show Utility's Weatheramic® Air Conditioner. At first sight, this year 'round combination heating-cooling unit puts up a winning selling "front" in an eye-pleasing new color—Bank Note Green. With Donderized undercoat and durable baked enamel exterior, new Bank Note Green is truly a lifetime finish. Under its dashing appearance beats a sturdy heart by Utility, with all the years-ahead refinements you've come to expect. "Floating Chassis" eliminates cabinet vibration—permits installation of furnace cabinet now, hermetically sealed refrigeration unit later; large 12" double width blower resiliently mounted to shush fan noises to a bare murmur; fully automatic controls for split-second switch from summer-to-winter, winter-to-summer operation; compact cabinet styling to save precious floor space. To build and maintain your already enviable reputation, next time be sure to specify the distinguished good looks, superior engineering, guaranteed dependability and common sense pricing of Utility Weatheramic® Heating-Cooling Combinations.

Weatheramic LINE



FORCED AIR FURNACES / AIR CONDITIONERS

UTILITY APPLIANCE CORP. 4851 south alameda street, los angeles 58, california

FIRST *air-cooled* 4-TON

TO DEVELOP FULL 4 TON CAPACITY AT 105°
CONDENSING AIR IN ALL MODELS!

KEEPS

WILLIAMSON

**YOUR FIRST CHOICE IN COOLING EQUIPMENT
AS WELL AS HEATING EQUIPMENT**

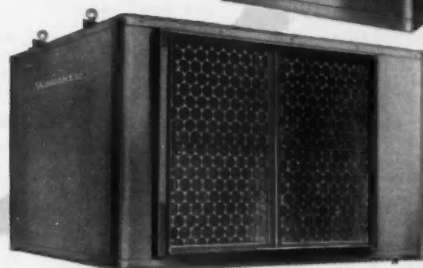
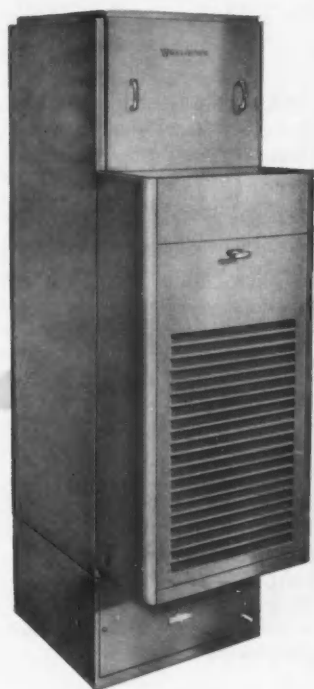
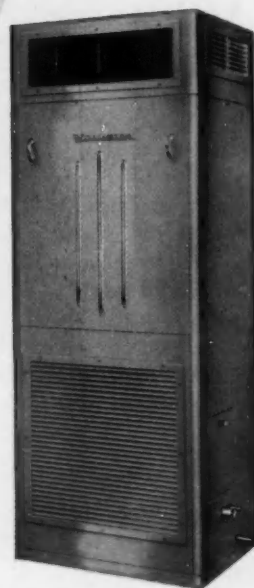
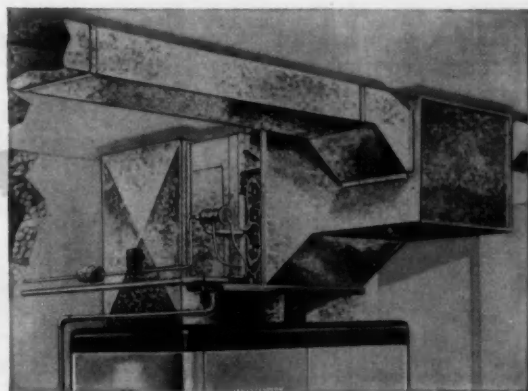


WILLIAMSON closes an Industry Gap! Now it's 2, 3, 4, 5 and 7½ ton waterless units! Satisfy everyone. When your customer needs 4-ton capacity, don't skimp with a 3 . . . or push an oversize 5. HERE'S A FOUR — right size, right price. No more compromise . . . no more lost sales!

*4 complete heating price lines ...
over 100 models to choose from*

WILLIAMSON . . . the industry's most complete line of Heating and Cooling Equipment! Rely on this pace-setting leader to bring you the very latest in sales-making appeals.

UNIT



THE WILLIAMSON COMPANY

3310-G-4 Madison Rd.

Cincinnati 9, Ohio

Gentlemen:

Please send me information on the following:

☐ Cooling Equipment

☐ Heating Equipment

☐ Duct, Pipe and Fittings

Name Title

Firm

Address

City Zone State

WHAT THE ASSOCIATIONS ARE DOING



NEW OFFICERS and directors for 1956: (l. to r., seated) Harry Fravel, Vance Heyman, Don Dieterle, D. E. Mannen, Robert L. Butler and Harry Fahle; (l. to r., standing) Phil C. Young, E. W. Kramer, Douglas Winning, Lee Jones, Adam J. Pataky and Lee Faunce



DAYTON ASSOCIATION officers welcome guest speaker C. S. Stackpole: (l. to r.) John Moellering, Carl T. Cowan, Mr. Stackpole, Vance Heyman and Robert L. Butler

Ohio Lists Seven Steps To Better Business

SEVEN ways to become better business men were offered the dealers and contractors attending the 42nd annual convention of the Ohio Sheet Metal Contractors Association in Dayton February 20-22. The seven ways were presented by speakers who offered advice on installment credit, sales promotion, installation and service procedures, accounting systems, shop modernization, sales training and the value of an association membership.

Officers elected for 1956 were: president, D. E. Mannen; vice presidents, Robert L. Butler, Harry Fahle, and Harry Fravel; secretary, William C. Lumm; treasurer, Don Dieterle. Four new directors are: Harold Lyle, Douglas Winning, Lee Faunce and Adam J. Pataky.

Select Convention Cities

Convention cities were selected for the next three years; they are Cleveland in 1957, Canton in 1958 and Toledo in 1959.

Past president Vance Heyman and convention chair-

man Robert L. Butler received engraved plaques in appreciation for outstanding service rendered the association during the past year.

The subject of installment credit on a national and industry wide basis was interpreted by Alfred F. Goodman, vice president, Winters National Bank, Dayton, who, after laying the basis for the use of installment credit, applied its principles to the warm air heating, residential air conditioning and sheet metal field. It was his opinion that any tightening of the funds available for installment buying would not have any affect on the sales made by this industry. Mr. Goodman said, "Your industry is a needed industry which offers the best credit risks." He suggested that dealers and contractors tie their advertising in with the local program of the Operation Home Improvement campaign which is very favorably accepted by money lending institutions.

Sales promotion was given considerable attention by A. J. L. Moritz, Jr., merchandising manager, Residential Air Conditioning and Heating Dept., Airtemp Div.,



PLAQUES FOR outstanding service to the association were presented by Don Dieterle to Vance Heyman and Robert L. Butler (right)



DEALER PANEL discusses heating and cooling system operation and installation: (l to r) C. C. Clark, Earl W. McNamee, Leo Faunce, John C. Davidson, Lee Jones, Gordon Justen and Dick John



EARLY REGISTRANT is Robert Weaver of Columbus (left), who is welcomed by Lee Gillespie and signed in by Harold Lyle



**NEW FREE
BOOKLET**

Shows
how to solve
duct liner equations
without a slide rule!

"How much of this duct should I line to attenuate 15 db of fan noise?"

Common problems like this can easily be solved when you have Gustin-Bacon's new 8-page brochure on Ultralite Duct Insulation and Duct Liner. And you won't need a slide rule — because Gustin-Bacon has plotted for you the values for 12.6a^{1.4}* power at various absorption coefficients, as well as giving you the sound absorption coefficients of Ultralite Duct Liner at various frequencies. In addition, this new brochure will show you a new easy way to solve the problem of lining ducts that are not long enough to obtain the required decibel reduction.

The new booklet also contains a wealth of helpful information about Ultralite Duct Insulation and Duct Liner. You'll find specifications and instructions for insulating heating ducts . . . cooling or combination ducts . . . forming duct liner with the metal . . . applying surface finishes, both indoors and out. This information makes it easier for you to specify and apply Ultralite than any other duct insulation on the market. Ultralite is the only insulation of long glass fibers . . . the first flexible glass fiber duct insulation on the market . . . the easiest and most economical duct insulation you can use. Get the facts from your nearby distributor, or write today.

WRITE TODAY FOR YOUR FREE COPY

*Equation on pg. 942 of 1955 American Society of Heating, Ventilating & Air Conditioning Engineers Guide or in Gustin-Bacon's new Duct Brochure.

GUSTIN-BACON *Manufacturing Company*



Thermal and acoustical glass fiber insulations • Pipe couplings and fittings • Molded glass fiber pipe insulation

226 W. 10th St., Kansas City, Mo.

WITH THE ASSOCIATIONS

(Continued)

Chrysler Corp. Mr. Moritz talked about the problems of selling the intangible results that are to be expected from residential cooling equipment. He stressed the importance of the 21 benefits of living in an air conditioned home as reported in the findings at the Austin Research Village. He also suggested that dealers should pound home that a prospect could not invest the same amount of money in any product that would give as much per dollar as an air conditioning system. Products such as cars, automatic washers, television sets, or any appliance can provide personal enjoyment for only a few hours a week, whereas the air conditioning equipment provides comfort 24 hours a day when needed.

Panel Discusses Installation, Service

A panel of six contractors and dealers, including C. C. Clark, Middletown; Earl W. Namee, Cincinnati; Leo Faunce, Toledo; Lee Jones, Columbus; Gordon Justen, Cleveland; and Dick John, Dayton; and moderated by John C. Davidson, answered questions from the floor about installation and service problems involving cooling equipment. The questions, in general, required answers that, when summarized, indicated it is advisable for a dealer to understand thoroughly the installation and servicing of this equipment because workmen look to the dealer for expert advice when a problem is encountered to which the workman hasn't the answer. It was the consensus of opinion of this panel that dealers and contractors must act as the clearing house for passing along new information to salesmen and engineers.

Until a dealer thoroughly understands his balance sheet and can read the figures so he can interpret their true meaning and translate this information into policies for operating the business, he will continue to be unaware that he is losing money through hidden costs, according to Joseph E. Livi, credit manager, Janitrol Div., Surface Combustion Corp. In presenting the importance of a good accounting system, Mr. Livi suggested that the dealer discuss with his accountant each month the meanings of the various ratios on the balance sheet. It was Mr. Livi's opinion that a trained man in the accounting field is more effective as an observer of operating costs than is a businessman who must spread his capabilities over many phases of the business.

Obsolete Inventory Wastes Money

One place where many contractors are wasting money without being aware of it is in the continued use of outdated equipment, according to Frank McNerney, sales manager, Dreis and Krump, who gave several case histories where contractors had modernized their operations and installed multi-function equipment to find that their operating overhead costs were reduced up to one third.

Sales training, both for the dealer's salesmen and for the dealer himself, was covered by C. S. Stackpole, managing director, American Gas Association, and Joseph D. Wilder, executive secretary, Sheet Metal Contractors National Association. Mr. Stackpole recommended that dealers' sales training programs should include having salesmen follow a daily pattern of making twelve phone calls each morning, send out twelve pieces of direct mail each day and make twelve cold canvass calls a day. The dealer should provide the guidance that would make such a program profitable, he said. Mr. Wilder told about personal experiences he had encountered when dealing with contractors in other fields of the construction industry. It was his suggestion that by following a four point program dealers and contractors in the heating, air conditioning and sheet metal industry could become better dealers and contractors than those of other industries. Mr. Wilder suggested as his four points: 1) responsibility, 1) pride, 3) reputation, 4) honesty.

The value of membership in an association was underlined by Don Dieterle, treasurer, Ohio Sheet Metal Contractors Association. Mr. Dieterle listed four advantages: 1) collective action with other contractors on major problems; 2) wide acquaintance with other contractors; 3) exchange of trade knowledge; 4) benefit of accumulative experience.

Canadians Hold Indoor Comfort Schools

THE AIR FORCE CLUB of Windsor was the location of the first of a series of 15 warm air heating schools which are being conducted across Canada by the National Warm Air Heating and Air Conditioning Association of Canada. Some 40 heating contractors, sheet metal workers, inspectors and architects were in attendance. Bill Wilson, managing director of the Canadian association, told the group that the course would offer them an opportunity to learn the latest methods and procedures for the installation of warm air heating equipment, and create greater liaison and cooperation between the heating contractor and the City Heating Inspectors.

WIDA Meeting Held at Minneapolis

MEMBERS of the National Heating & Airconditioning Wholesalers, Inc. met recently in Minneapolis to learn about creative selling under NHAW's Wholesalers' Integrated Development Approach program. The sessions covered techniques for training and managing salesmen, conducting sales meetings and carrying out sales programs. The classes are planned to provide wholesalers information that will enable them to promote their business, and to show them how to conduct similar schools for their dealers.

(More association news on page 54)

Will you share in the future that begins...



The Frigidaire distributor in your area has full information on the activity that may make you a part of the "air conditioned future"—a future that will mean most to the farsighted businessmen who associate themselves with Frigidaire Conditioning and Heating now. Phone him, or write FRIGIDAIRE DIVISION, General Motors Corporation, Dayton 1, Ohio.



FRIGIDAIRE



Conditioners

FRIGIDAIRE SALES CORPORATION OFFICES are located in these cities...

ATLANTA, Georgia	LOS ANGELES, California
BALTIMORE, Maryland	MILWAUKEE, Wisconsin
BIRMINGHAM, Alabama	MINNEAPOLIS, Minnesota
BOSTON, Massachusetts	NEW ORLEANS, Louisiana
BUFFALO, New York	NEW YORK, New York
CHICAGO, Illinois	OAKLAND, California
CLEVELAND, Ohio	OKLAHOMA CITY, Oklahoma
DAYTON, Ohio	PHILADELPHIA, Pennsylvania
DENVER, Colorado	PITTSBURGH, Pennsylvania
DETROIT, Michigan	ROANOKE, Virginia
FORT WORTH, Texas	ST. LOUIS, Missouri
KANSAS CITY, Missouri	

FRIGIDAIRE DISTRIBUTORS are located in these cities...

EL PASO, Texas W. G. Walz Co.	MIAMI, Florida Domestic Refrigeration Co., Inc.	SEATTLE, Washington Sunset Electric Co.
HAGERSTOWN, Maryland Potomac Edison Co.	OMAHA, Nebraska Major Appliance Co.	SIOUX CITY, Iowa D. K. Baxter Co.
HOUSTON, Texas Cox and Blackburn, Inc.	PORTLAND, Oregon Sunset Electric Co.	SPOKANE, Washington Sunset Electric Co.
INDIANAPOLIS, Indiana Refrigerating Equipment Co.	ROCHESTER, New York Chapin-Owen Co., Inc.	SYRACUSE, New York Onondaga Supply Co., Inc.
LOUISVILLE, Kentucky Smith Distributing Co.	SALT LAKE CITY, Utah W. H. Bintz Co.	TAMPA, Florida Byars-Forgy, Inc.
MEMPHIS, Tennessee McGregor's Inc.	SAN ANTONIO, Texas Straus-Frank Co.	WICHITA, Kansas S. A. Long Co., Inc.



Insist on the New *Classic* Thermostat...

**Get Accurate Heating Control
Attractive, Modern Styling
Easy, Inexpensive Installation**



**Install DETROIT CONTROLS'
New *Classic* Thermostat
for Customer Satisfaction!**

DETROIT  CONTROLS
CORPORATION

5900 TRUMBULL AVE. • DETROIT 8, MICHIGAN
Division of AMERICAN RADIATOR & STANDARD SANITARY Corporation

Representatives in Principal Cities—Canadian Representatives:
RAILWAY AND ENGINEERING SPECIALTIES, LTD.,
Montreal, Toronto, Winnipeg



The Classic will add style and saleability to the heating systems you manufacture, sell or install.

Its smart, modern design will complement the decoration of any home, new or old. The single, large numbered dial is slanted for perfect vision—can be read at a glance! The temperature selector is directly under the indicator needle—eliminates fumbling with old-fashioned turning or twisting devices.

Installation is very simple. No precision levelling is necessary. The Classic requires only two wires—easily replaces any two or three wire thermostat of earlier design.

Close control of any type heating, within a *fraction of a degree*, is assured by Detroit Controls' Timed Cycling function.

National advertising in *Better Homes & Gardens*, *Small Homes Guide*, *Home Modernizing* and other magazines will bring broad consumer acceptance to the Thermostyled Classic.

Take Advantage of this opportunity...

SELL THE *Classic*

AUTOMATIC CONTROLS for DOMESTIC HEATING • AIR CONDITIONING • REFRIGERATION • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES



Joseph Galletta, Owner, and Henry R. Zuniga, Chief Engineer, Modern Air Conditioning Company, Long Island City, N. Y.

**We bought
our second carload
of Westinghouse
Air Conditioning
in 21 days***

***Those special introductory prices did it.**

THANK YOU WESTINGHOUSE FOR THOSE SPECIAL

"COMPETITION OUTBID RESIDENTIAL



"Sales of Westinghouse Year-Round Units, like this one we're installing to replace a furnace at the home of Mr. and Mrs. Anthony Nicolini, 151-11 24th Road, Whitestone, Queens, N. Y., completely eliminated our normal off-season slump, increased our residential unit sales 75% over last year," say Mr. Galletta and Mr. Zuniga.

YOU CAN BE SURE...IF IT'S
Westinghouse

What do you
need to increase
your AIR
CONDITIONING
business?

INTRODUCTORY PRICES ...

ON EVERY JOB; SALES RISE 75%!"

***Says Joseph Galletta, Owner, and Henry R. Zuniga, Chief Engineer;
Modern Air Conditioning Company, Long Island City, N. Y.***

"When the Westinghouse special introductory prices were announced, we ordered a carload right away. Then we went to work on our prospects selling quality PLUS this amazing price. The results amazed us. Within three weeks we needed—and ordered—another carload. We're convinced that any dealer can 'clean up' with a deal like this."

Heating and cooling for the price of cooling alone!

"The Westinghouse Year-Round Residential Unit is our 'hottest' item. It should be. Because now we can sell 3-ton Westinghouse units at competitive 2-ton prices. To new home builders we advertise that we can install a Westinghouse heating-cooling unit for what they'd otherwise pay for heating alone, (or cooling alone). We prove to them that this unit delivers up to 20% more cooling capacity per dollar than competition. When you can tell that kind of a story, your selling is practically done for you."

Off-season slump eliminated!

"Thanks to Westinghouse, we're now on a year-round profit basis. The off-season demand for the Westinghouse commercial units and year-round residential models has raised cold-weather sales far above our expectations. Since early January—when these Westinghouse prices were announced—we've had all we could do to keep up with the work."

"Even greater residential sales expected with new 'ACU' "

"With the new air-cooled condensing units now being delivered, we expect our residential sales to really jump. Not only because of the low price, but because they completely eliminate the need for water, plumbing, special sewage arrangements. They can be installed inside or outside the home and, of course, can be used with any existing warm air furnace."

Plenty of distributor support!

"Our Westinghouse distributor has done wonders with help on installation and prompt delivery. They're the most dependable people with whom we've ever done business."

★ Lower Prices? ★ Better Product? ★ More Promotion Support?

***Your Westinghouse
distributor has
the answers!***

**CALL OR WIRE TODAY! DISTRIBUTOR LIST ON NEXT PAGE...
Learn how you, too, can offer "more cooling per dollar".**

Call or wire your nearest Westinghouse Distributor collect

ALABAMA

BIRMINGHAM
Flint Refrigeration Co.
127 S. 20th Street
Mr. Earl E. Allen, President

MOBILE
Associated Equipment Company
717 St. Joseph Street

ARIZONA

PHOENIX
Fresco Distributing Co.
21 East Durango Street
Mr. Walter A. Biddle, Mgr.

ARKANSAS

LITTLE ROCK
Fagan Air Conditioning Co., Inc.
900 Center Street
Mr. Jack W. Thompson, General Mgr.

CALIFORNIA

BAKERSFIELD
The Isotherm Co.
605 Williams St.
Mr. Rowell Smith, Co-owner & Mgr.

FRESNO
Air Conditioning Sales, Inc.
2208 Tuolumne Street
Mr. Nat N. Lees, Mgr.

INDIO
Frank Cavanaugh's Electrical Service
45-248 Jackson Street
Mr. Frank Cavanaugh, Owner

LOS ANGELES 17
Comfort Distributors Corp.
1709 W. Eighth St., Rm. 1125
Mr. Fred Welthouse, Manager

COLORADO

DENVER 4
T. C. Alexander
1100-06 Champa Street
Mr. T. C. Alexander

CONNECTICUT

BRIDGEPORT 8
Air Conditioning Corp. of Connecticut
41 California Street
Mr. Robert Stember, Manager

FLORIDA

TAMPA 1
Tampa Armature Works, Inc.
401 South Morgan Street
Mr. M. D. McRae, Jr.

GEORGIA

ATLANTA
Raymond Distributing Company
156 Rogers Street, N.E.
Mr. T. R. Sockwell, Pres.

MACON
Aaron Torch & Sons, Inc.
452 First Street
Mr. Aaron Torch, Pres.

ILLINOIS

CHICAGO 44
Mid-States Air Cond. Equip., Inc.
4640 West Washington Blvd.
Mr. Marshall D. Segal, Pres.

PEORIA 2
O'Brien Distributing Co.
100 Walnut Street
Mr. C. A. O'Brien, Sales Engr.

INDIANA

EVANSVILLE
Evansville Electric Service, Inc.
1025 Reis Ave.
Mr. Chas. R. Legeman, Pres.

FORT WAYNE
Westinghouse Electric Supply Co.
New U.S. 30 & Meyer Road
Mr. H. W. Schmelker, District Mgr.

INDIANA (Cont.)

GARY
G. W. Berkheimer, Inc.
1040 Washington St.
Mr. George Primich, Vice-Pres.

INDIANAPOLIS
Illingworth Construction & Engr. Co.
724 North New Jersey Street
Mr. R. J. Illingworth

IOWA

DAVENPORT
Gierke-Robinson Co.
210-212 E. River St.
Mr. E. W. C. Gierke, Partner

KANSAS

WICHITA
Hill Electric Air Conditioning, Inc.
307 Laura Street
Mr. N. Cengiz, Pres.

KENTUCKY

LOUISVILLE 4
Stewart Distributing Co.
1019 East Broadway
Mr. James G. Stewart, Owner

LOUISIANA

NEW ORLEANS 12
Equitable Equipment Co., Inc.
410 Camp Street
Mr. J. T. Knight, Jr.

SHREVEPORT
The Dykes Company, Inc.
1012 Market Street
Mr. O. J. Dykes, Jr., President

MARYLAND

BALTIMORE 15
Lloyd E. Mitchell, Inc.
4650 Reisterstown Road
Mr. W. P. Flanigan, Vice-Pres.

MASSACHUSETTS

BOSTON 10
Carlson Equipment Co.
10 High Street
Mr. E. E. Carlson, President

MICHIGAN

DETROIT 3
Temp-Matic Inc.
12320 Hamilton Avenue
Mr. T. H. Mobley, Gen'l. Mgr.

GRAND RAPIDS
Westinghouse Electric Supply Co.
511 Monroe St., N. W.
Mr. William F. Harper, Sales Mgr.

MINNESOTA

MINNEAPOLIS 6
Thomas & Thompson Air Cond., Inc.
2428 Riverside Avenue
Mr. Floyd M. Thompson, President

MISSISSIPPI

JACKSON
South Central Htg. & Pibg. Co.
2666 N. Mill St.
Mr. Seymour R. Pooley, Owner

MISSOURI

KANSAS CITY 8
Natkin & Company
1924 Oak Street
Mr. Henry Gould, Vice-Pres.

ST. LOUIS 10
Natkin & Company
5555 Manchester Ave.
Mr. Carl Bruechert, Vice-Pres.

SPRINGFIELD
Paul Mueller Company
1616 W. Phelps
Mr. Paul Mueller, Pres.

NEBRASKA

OMAHA 5
Natkin & Company
4001 Leavenworth Street
Mr. Henry Kleinkauf, President

NEVADA

RENO
Saviors Electrical Products Corp.
640 N. Sierra St., P. O. Box 531
Mr. Joe Bass, Executive Vice-President

NEW JERSEY

CAMDEN
Borstein Electric Co.
415 Broadway
Mr. Isidor A. Borstein, Owner

IRVINGTON
Geiger Air Cond. & Refrig. Co., Inc.
1381 Springfield Ave.
Mr. Ralph Geiger, Owner

NEW YORK

BUFFALO 2
Buffalo Electric Co., Inc.
75 W. Mohawk Street
Mr. Charles E. Schuster, Vice-Pres.

JAMESTOWN
Sans Corporation
132 Blackstone Ave.
Mr. Marvin Friedman,
Mgr. Air Cond. Dept.

NEW YORK 10
Times Appliance Co., Inc.
353 Fourth Avenue
Mr. C. J. Ward, Vice-President

ROCHESTER 9
Vanas & Gottemeier, Inc.
401 Webster Avenue
Mr. Robert E. Korts, Sales-Service Engr.

SCHENECTADY
Jon Tree Sales & Supply Co.
412 Warren St.
Mr. John Lapinch, Owner

NORTH CAROLINA

CHARLOTTE
Air Conditioning Equipment Co.
P. O. Box 4095
Mr. John J. Tilloston, Mgr.

WINSTON-SALEM
Wall-Turner Heating & Air Cond. Co.
487 S. Stratford Road
Mr. S. W. Turner, Eng. & Mgr.

OHIO

CINCINNATI 2
The Kuempel Co.
1000 Gilbert Avenue
Mr. Hal K. Jennings, Vice-President

CLEVELAND 15
Unit Air Conditioners, Inc.
2336 Prospect Avenue
Mr. Hyman H. Weiner

COLUMBUS 2
The Kuempel Company
2572 High Street
Mr. Leon Kuempel, Pres.

TOLEDO 4
Air Conditioning Distributors, Inc.
4322 Garrison Rd.
PO Box 123
Station H.
Mr. L. B. La France, Pres.

YOUNGSTOWN 3
Carlson Electric Company
121 E. Boardman Street
Mr. E. C. Carlson, Pres.

OKLAHOMA

OKLAHOMA CITY
Air Engineering Inc.
26 N. E. 26th St.
Mr. E. M. Howe

PENNSYLVANIA

ERIE
Lakes Engineering Company
1316 G. Daniel Baldwin Bldg.
Mr. Thomas P. Gannon, Partner

PHILADELPHIA 31
Raymond Rosen & Company, Inc.
Parkside & 51st Street
Mr. Wm. Neelon, Builders Div. Mgr.

PITTSBURGH 1
Aircon & Heating Supply Co., Inc.
3811 Penn Avenue
Mr. Sanford Bausman, President

WILKES-BARRE
AirCo Distributing Company
20 South Washington Street
Mr. Louis L. Popky, Partner

SOUTH CAROLINA

COLUMBIA
Clark Heating & Plumbing Supply Co.
2700 Commerce Drive
Mr. Joseph W. Clark, Sr., Owner

TENNESSEE

CHATTANOOGA
Lennon Co., Inc.
1516 E. Main St.
Box 3052

KNOXVILLE
Indoor Comfort Distributors Co.
520 Van Street
Mr. N. W. Bradley, Sales Mgr.

MEMPHIS 3
Associated Southern Industries
1161 Union Avenue
Mr. R. B. Buckingham, Mgr.

TEXAS

DALLAS
Trans-State Supply Co.
425 South Field
Mr. Ken Wallace, Mgr.

EL PASO
Fred A. Lankford
2601 E. Missouri St.
Mr. Frank A. Lankford, Pres.

FT. WORTH
General Engineering Corp.
118 South Main St.
Mr. W. C. Weeden, Vice-Pres.

HOUSTON
Star Steel Supply Co.
9411 Alameda
Mr. Morris Perlman, Dist. Mgr.

JACKSONVILLE
Hillencamp Engineering Company
Alabama & Patton St.
P. O. Box 209
Mr. Alton Hillencamp, Owner

LUBBOCK
Homer G. Mazy & Co.
1611 Fourth Street
Mr. Lee Fields, Pres.

SAN ANGELO
Climate Engineering Company
2320 Sherwood Way
Mr. Kenneth Eschman, Owner

SAN ANTONIO
Byrne, Inc.
1626 E. Houston St.
Mr. Stanley N. Byrne, Pres.

UTAH
SALT LAKE CITY 1
Williams, Gritton & Wilde
204 Dooly Boulevard
Mr. R. C. Williams, Partner

VIRGINIA
NORFOLK
Stokley's Services, Inc.
4000 Colley Avenue
Mr. John M. Stokley, President

ROANOKE
Davis H. Elliot Co., Inc.
11-13 Naval Reserve Ave., S.E.
Mr. Davis H. Elliot, Pres.

WASHINGTON, D.C.
Combustioneer Corp.
409 Tenth St., S.W.
Mr. A. E. Beitzell, Vice-President

WASHINGTON
SPOKANE 4
Warren Little & Lund
W. 609 Second Avenue
Mr. F. J. Lund, Partner

WEST VIRGINIA
CHARLESTON
Thrush Refrigeration Co.
1012 Virginia St., E.
Mr. R. D. Thrush, Owner

WISCONSIN
MILWAUKEE 7
Layton Supply Company
924 E. Russell Avenue
Mr. Howard B. Engles, President

YOU CAN BE SURE...IF IT'S **Westinghouse**



NOT THIS! This family's uncomfortable—really uncomfortable. Floors are cold. Ceilings are hot. The whole house is drafty. Temperature's never the same.



BUT THIS! Now, they're constantly comfortable. In tests, Waterbury COMFORTROL heating has shown less than 1° temperature variation from floor to ceiling.

New kind of heating gives constant comfort ...hour after hour after hour

Few things that you can offer prospects will interest them more than *constant* comfort. New Waterbury COMFORTROL By-Pass heating provides comfort morning-noon-and-night.

COMFORTROL *anticipates* outside temperature changes long before they affect comfort. It mixes cool air with warm air to provide the exact temperature called for by outdoor and indoor thermostats. Its continuous supply of clean, fresh humidified air

adds warmth at the same rate as it is lost through walls, windows and attics. There are no drafts, no hot and cold cycles of temperature. In tests with Waterbury COMFORTROL, rooms have shown less than one degree temperature variation from floors to ceilings.

Your prospects choose one unit over another because it is a better value. Increase your unit sales by offering the *constant* comfort of Waterbury COMFORTROL.

Send for FREE booklet: "IT TAKES MORE THAN HEAT TO BE COMFORTABLE"

That's just what Waterbury's new COMFORTROL booklet is all about. Thirty-two pages of facts, illustrated by famous cartoonist Tom Henderson, on the new *kind* of heating that will help you sell more units.



Write: Waterman-Waterbury Co., 1122 N. E. Jackson Street, Minneapolis 13, Minnesota.



Waterbury *Comfortrol*

By the makers of world-famous Waterbury furnaces and air conditioners

WITH THE ASSOCIATIONS

(Continued from page 46)



CONVENTION COMMITTEE gathers at the registration desk: (l. to r., seated) Tom Burniece, Jr. and Howard D. Camitsch. Standing, Ray J. Kraus and Harry Quade, Jr.



C. W. NESSELL points out some of the advantages of warm air heating



RESOLUTIONS COMMITTEE reviews proposed recommendations for presentation at the convention: (l to r) Walker Jamar, Richard E. Walsh and H. T. Helle

Minnesota Contractors Study Paths to Profits

HOW TO MAKE a profit in the warm air heating, sheet metal and roofing contracting business was the theme of the tenth annual convention of the Sheet Metal and Roofing Contractors Association of Minnesota held Feb. 16-18 in Minneapolis. Each session of the program was directed to this objective. Technical and managerial advice was offered by speakers and panelists. Resolutions presented during the business session charged the new officers with the responsibility of carrying out a program dedicated to this theme. New officers elected were: Harry Quade, Jr., president; Fred Kuettel, Jr., vice president; Oz Christen, secretary; Herman Hertzner, treasurer; and Ray Hershey, sergeant-at-arms. New directors elected for two year terms were: Leonard Edwards, Walker Jamar, Jr. and Chris Lee. Holdover directors are Willard Ahrens, Harold Ofenloch and David Diamond.

A forum moderated by Jack Demling, assistant secretary of Sheet Metal Contractors National Association with panel members J. A. Livi, credit manager, Janitrol Div., Surface Combustion Corp.; B. E. Goldstein, sales

manager, Globe, Inc. (Minneapolis distributors); James McCawley, editor, National Roofer; and Clyde M. Barnes, editor, American Artisan, proposed to the dealers and contractors ways and means by which the profit picture could be brightened by including certain tried and proved procedures in their managerial duties. Mr. Demling set the stage for better opportunities to earn a fair profit by classifying a price cutter as a quality cutter. Mr. Demling said that to make a fair profit a dealer must either raise his prices above the price cutters or cut the operating costs below those of the price cutters. The limitation of both of these paths of action is based upon the laws of competition and economics, he said.

Cooperation between competing dealers and contractors is most often brought about through activities of local associations, where working together on mutual problems brings about a better understanding and appreciation of the other fellow, according to Mr. Demling, who recommended that non-members of local associations be encouraged to participate in solving industry problems.



PANEL MEMBERS suggest ways that can be used to make a profit: (l to r) B. E. Goldstein, Walter Swenberg, Jack Demling, Clyde M. Barnes and James McCawley



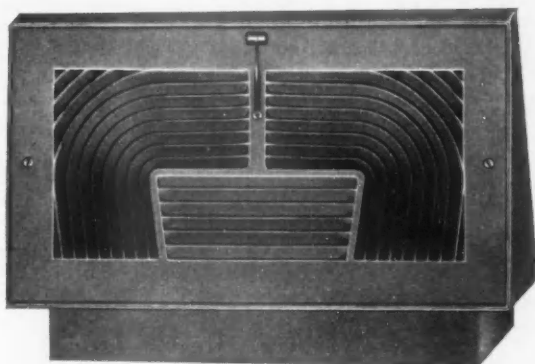
NEW PRESIDENT Harry Quade, Jr. (left) receives congratulations from outgoing president Walter Swenberg



DISCUSSING SOME of the industry's problems are (l to r) Harold Ofenloch, Ruger M. Keehn, Larry Bauer and Joe Scholtes

PERFECT PERIMETER DIFFUSERS

For Each and Every Desire
The **GREATEST** Complete Lines on Earth



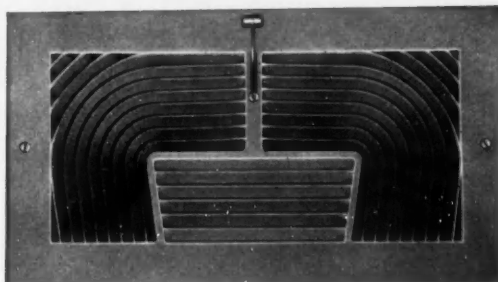
The 3 Sizes of the
No. 105 SIDEWALL DIFFUSERS

are Ready for Shipment.
The **WORLD'S GREATEST** and **MOST POWERFULLY**
EFFICIENT of SIDEWALL DIFFUSERS.

No. 106 DIFFUSER BASE REGISTER

Made in 3 SIZES—10 x 6—12 x 6—14 x 6.
Complete with a **TIGHT FITTING NON-LEAK HEAD**.
Costing no more than others with **LOOSE-FITTING**
BACK Plate.

Diffuses **FULL 180 Degrees** Evenly and more **Effec-**
tively. Complete with **Balancing Set-Lock**.
YOU CAN'T MISS—with the **U.S. No. 106**.



The No. 1000 U. S. BASE DIFFUSERS — LEADER of All "Strip-Base" Diffusers



The NEW No. 1000 U. S. SUPER BASE-DIFFUSER

Have Increased Free Air Opening—Reduces Resistance—Prevents Air-Noise at
Higher Velocity Levels—Make Them the **ALL-TIME LEADER**.
CUTS THAT LABOR — BALANCES THE SYSTEM — FURNISHES EVERYTHING —
STUDY ITS OUTSTANDING FEATURES
Look for Announcement in Near Future of a New Addition to the No. 1000 Line
Order Your Catalog and Folder Supply Now.



UNITED STATES REGISTER COMPANY

BATTLE CREEK, MICHIGAN

MINNEAPOLIS • KANSAS CITY • ALBANY

SOLD BY LEADING JOBBERS FROM COAST TO COAST

WITH THE ASSOCIATIONS

(Continued)

The result, he emphasized, often is an increase in profit to all parties.

The amount of money lost each year by dealers and contractors can be reduced by conducting careful inquiries into a prospect's credit standing, according to J. A. Livi. He also suggested that the collection problem faced by dealers can be minimized by sending out a statement on the day the installation is completed. Where certain portions of a job are finished at different periods throughout a construction project, Mr. Livi suggested that the collection of partial payments be attempted as soon as it's apparent that a considerable period of time will develop between different operations.

When unfamiliar financial problems are faced by a dealer, B. E. Goldstein suggested that the wholesaler and manufacturer be contacted at once. Often the experiences faced by the dealer are similar to those faced and solved by other dealers, and the answer is known to those acting as a "clearing house."

Case histories of successful dealers were presented by James McCawley, who summarized the most important possessions of those dealers as outstanding salesmanship and merchandising ability.

Sales promotion and how it helped a dealer to increase his sales volume 80 percent with a resultant profit increase of 40 percent was outlined by Clyde M. Barnes, who urged the use of sales promotional material supplied by manufacturers and a careful check of each source to determine the most effective media. Results of the case outlined by Mr. Barnes indicated that several of the sources previously thought to be less effective than others proved to produce excellent leads. One of the media producing surprising results was a movie trailer used at each showing of a drive-in theatre.

Warm Air Offers Comfort Advantages

Pointing out the many improvements made in the distribution of heated and cooled air, C. W. Nessel, chairman, Field Investigating Committee, National Warm Air Heating and Air Conditioning Association, told the dealers that "never in history has our industry had so much to offer the homeowner." He said the technical knowledge available to the warm air heating installer makes it possible to give the public comfort far superior to that which other types of heating can offer. It is Mr. Nessel's opinion that if all the advantages the warm air heating and residential air conditioning industry offers are made known to prospects through a careful sales presentation, only high quality installations can result. Good practice in estimating the cost of making a quality installation requires that all the costs of doing business plus a fair profit be included in the price quoted.

The 1957 convention will be held in St. Paul.

Mineral Wool Group Accepts Manual 11

THE TECHNICAL COMMITTEE of the National Mineral Wool Association accepted Manual 11 of the National Warm Air Heating and Air Conditioning Association as an industry standard in calculating heat gain at a recent meeting held in Chicago's Drake hotel. Participating in the discussion of Manual 11 and the relationship between insulation and air conditioning costs were J. M. Martin, NWAHACA director of industry relations; Don Bahnfleth, research associate at the University of Illinois; Fred W. McGhan, engineer, Federal Housing Administration; and C. E. Lund, University of Minnesota professor.

Discuss High Cost of Price Cutting

THE COST OF PRICE CUTTING was the subject of a talk given by H. A. White, manager of the Chicago branch of Inland Steel Products Co., at a recent meeting of the Fox Valley Furnace and Sheet Metal Contractors' Association. Mr. White explained the difference between markup and margin and pointed to the danger of confusing the two in any price adjustment. Referring to the folly of price cutting, he called attention to the tremendous increase in volume which must be gained to effect the same profit volume when the profit margin is reduced.

He also discussed the market potential for sheet metal products in the Fox Valley area and told the contractors that the best way to gain a larger share of this market was by increased selling efforts rather than by price cutting. "Speaking of potential business," he said, "there is a tremendous market in the home repair and modernization field which, as you know, is the theme being sponsored on a national basis for 1956."

He pointed out that contractors should pay particular attention to costs and recommended the use of a check list in determining job costs to make sure no phase of expense was overlooked. In conclusion he stressed the importance of profitable operation for individual health and that of the industry in general.

Florida Completes Convention Plans

MEMBERS of the convention committees of the Roofing and Sheet Metal Contractors Association of Florida have completed their plans for the group's forthcoming convention to be held April 27-28 at the Suwannee Hotel, St. Petersburg. Don Brown, president of the association, is chairman of the agenda committee and has arranged for a number of forums and discussions on subjects of general interest. Bob Weeks, Jack Hurlston and Larry Ives—members of the entertainment committee—have been hard at work on their assignment and have prepared a well rounded and interesting program. Heading the ladies' committee is Eileen Weeks.



LEADERS RELY ON LAU

25 Years Building Better Blowers

This is our Silver Anniversary Year. As in the past, Leaders Rely on Lau as the major supply source for Blowers and Parts . . . the best for heating and air conditioning units. You get the finest, newest developments in advanced blower engineering when you specify LAU.

FIT FOR A FLIGHT



THE LAU BLOWER COMPANY

2000 Home Ave. • DAYTON 7, OHIO

Other plants at Kitchener, Ont., Canada, and Azusa, California

The exclusive Lau-designed and manufactured shaft has an aircraft quality finish in the journal area. Actually our two-pass centerless grinding and high-pressure burnishing of these shafts gives them a finish superior to that of some aircraft parts. This shaft, used in all Lau belt driven blowers, is built to very close dimensional tolerances for exceptionally long life, exact fit, quieter operation and maximum efficiency; permitting the use of finer lubricants. Uniform flat control is obtained by the simultaneous automatic milling of all three flats at one time. Our quality-engineered shaft is but one of the many unseen features that make Lau Blowers outstanding in performance and economy. What's your air-moving problem? Write Lau today, Dept. M.

LB-2, 56



SERIES "A"
BLOWER



ELECTRO-WHEEL
BLOWER



LAU-PAK
BEARING



SERIES "A"
WHEEL



WELD
WHEEL



LAU STEEL
PULLEY



BEARING
BRACKET



PANEL
FAN



RANCHER
FAN

WORLD'S LARGEST MANUFACTURERS OF AIR-CONDITIONING BLOWERS



EIGHT "COSTS of inventory possession" are emphasized by Robert G. Welch who outlined ways sheet metal contractors could reduce these costs



THIS IS THE TEAM that will direct the Wisconsin association this year. They include newly elected officers and members of the board of directors

Wisconsin Contractors Hear Tips On Cutting Inventory Costs

THE RISING "COSTS of possession" and how it can reduce the sheet metal contractor's profits was pointed out by Robert G. Welch, executive secretary of the American Steel Warehouse Association, at the annual convention of the Sheet Metal Contractors' Association of Wisconsin, Inc., March 12-14.

A new slate of officers was elected. They are: Vince Kerscher, president; Roland Biersach, first vice president; Carl Behrnd, second vice president; Ben Brozek, secretary and Frank Kramer, treasurer. In addition two directors were elected for three years. They are: Ted Kuck and Anthony Demshar. Directors remaining in office are Al Olson, Martin Petersen, R. A. Hovland and A. T. Ihde. Robert S. Schmieder is executive secretary.

In describing how a sheet metal contractor's inventory costs can be reduced, Mr. Welch listed eight items which

are involved in inventory possession. They are: cost of capital invested in inventories, cost of scrap and wastage, cost of obsolescence, cost of labor for handling, cost of insurance, taxes and accounting; cost of space for storage, charges on capital invested in storage, handling and cutting equipment and cost of price reduction. The original purchase price must be added to each of these inventory divisions before the "ready for use" price is determined.

Mr. Welch said the steel warehouse can help cut these costs. When the contractor needs stock he can call the warehouse far enough in advance and place the order for exact measurements. He thereby cuts down on wastage and allows the floor space required for storing metal to be used for other functions.

Thomas G. McGann, professor at Marquette University, assisted Mr. Welch's presentation by drawing a hypothet-



DISCUSSING MEMBERSHIP in the national association are: (l to r) Roland Biersach, Frank Kramer, Joseph D. Wilder, J. E. Harbridge and Ted Brenner



CONVENTION DELEGATES discuss points brought out by speakers Randall Nelson and Roy Hauck. (L to r) Randall Nelson, Roy Hauck, Gene Oswanski, Mike Poja and John Miskulin

heating and air conditioning contractors know...

"time is money... P-K® screws save both!"



*Speedy, trouble-free fastenings help
keep installation costs to a minimum*

There's a good reason why Parker-Kalon Sheet Metal Screws are preferred by heating and air conditioning men. They've learned that P-K screws keep installation costs down because they're headed, threaded, pointed and hardened to provide quick, sure fastenings every time.

There's just no reason to take chances with "bargain screws" . . . screws that prove difficult to drive . . . screws that loosen or break . . . screws that "lose their heads." Insist on P-K Sheet Metal Screws and get consistent high quality and dependability—true economy. For sheet metal screws that drive right and stay tight, users agree . . . "if it's P-K, it's O.K."

*Sold Everywhere Through Leading Sheet Metal and
Industrial Distributors. Warehouse in Chicago, Illinois.*

PARKER-KALON® fasteners



PARKER-KALON DIVISION • GENERAL AMERICAN TRANSPORTATION CORPORATION • CLIFTON, NEW JERSEY

WITH THE ASSOCIATIONS

(Continued)

ical case. In Professor McGann's example the contractor purchased a 20 ton shipment at \$125 for \$2500, but cost of possession increased the price an additional \$1097.50. The contractor could have purchased the same 20 ton lot from a warehouse, a ton at a time, for \$3300, saving \$297.50.

In another discussion, Randall Nelson, of the National Warm Air Heating and Air Conditioning Association, encouraged the contractors to publicize and promote the industry. Mr. Nelson cited Milwaukee's "Operation Wham" as an outstanding example of promotion. In their campaign, the Milwaukee contractors, in cooperation with the National Warm Air Heating and Air Conditioning Association, will conduct a twelve month advertising campaign in the Milwaukee newspapers.

J. D. Wilder, executive secretary of the National Sheet Metal Contractors' National Association, recommended that plans for an application by a state chapter to the national association be given careful planning, because previous experience with state groups has shown that contractors residing a considerable distance from the meeting place found it difficult to attend. This made for lower attendance at each meeting. Mr. Wilder also suggested that chapter groups meet at least once each month and that considerable planning go into each meeting in order to get the most out of the information supplied by the national association.

In his discussion on the subject of the jurisdictional right to sell and install equipment often claimed by other trades, Mr. Wilder said many of these problems could be avoided by working directly with the architect to see that specifications are written in for sheet metal work rather than in other trade categories. One aid in helping the architect to specify the correct equipment in the correct category is to consult the association's manuals, *Standard Practice in Sheet Metal Work*.

Mr. Biersach, with instructors from the Milwaukee Vocational School, discussed personnel and job relations. The instructors described the job relations course, how it aids in the Milwaukee apprentice program and its purpose—to create a well adjusted mechanic.

Roy Hauck, Ingersol Conditioned Air, discussed the procedure for estimating, selecting and installing year 'round air conditioning systems in several types of homes. He also pointed out the variation of problems in homes of similar area but of different structure and shape. Mr. Hauck emphasized the importance of accurate estimating procedures, urging that correctly sized equipment be selected to provide satisfaction to the customer.

In a business session, the convention delegates selected six district meeting sites. They are: Racine, Manitowoc, Eau Clair, Oshkosh, Madison and Baraboo. First district meeting will be held in April, but May will be passed this year because of proximity to the national convention.

During reading of the financial report for 1955 it was shown that expenditures by the association was \$1500

greater than income. Therefore, an increase in dues was voted in, raising the annual dues rate from \$15 to \$20 beginning with the 1957 fiscal year.



MEETINGS COMMITTEE of the Roofing, Sheet Metal and Air Conditioning Contractors' Association of St. Paul discuss the program with speaker John Demling. From left are Richard Grant, John Demling, Robert O. McPhillips, Richard E. Walsh and Ervin Belisle

Price Problems Discussed at St. Paul

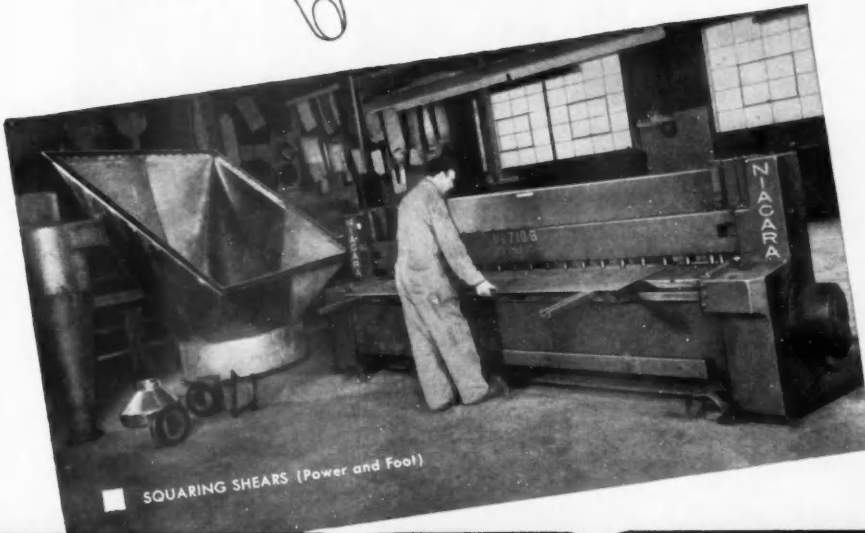
AT ITS FEBRUARY 17 MEETING, the Roofing, Sheet Metal and Air Conditioning Contractors' Association of St. Paul heard John Demling, assistant secretary of the Sheet Metal Contractors' National Association, discuss the price problem faced by contractors throughout the country. Mr. Demling suggested steps that could be taken by local associations to help improve the situation.

He said that pressure from almost every quarter tended to force profit levels generally lower in 1955 than in previous years and expressed the opinion that the anticipated drop in new house construction in 1956 would tend to exert additional pressure upon heating dealers from building contractors. Recent action on the part of the home builders' national association has indicated that the building contractor feels the heating dealer is a middleman who could be eliminated, Mr. Demling said, and suggested that one way to combat this growing attitude was to stimulate the formation at the local level of SMCNA's "Certified Heating" program.

The "Certified Heating" program is now being used effectively in Chicago and Milwaukee and has recently been started in a number of smaller cities. It has proved effective in bringing about an understanding between heating dealers and building contractors never experienced before.

The program calls for the installation of all warm air heating systems according to the procedures recommended in the NWAHACA manuals. Dealers cooperating in the plan guarantee that as a group they will see that every heating system will give the satisfaction a customer has been promised and has the right to expect.

Pick the right machines for your shop



■ SQUARING SHEARS (Power and Foot)



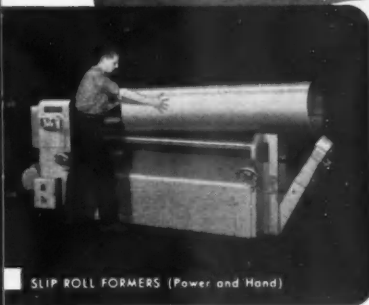
■ ROTARY MACHINES (Power and Hand)



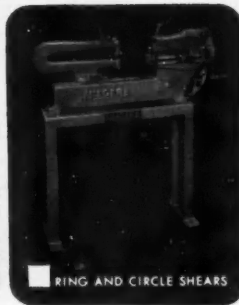
■ GROOVERS (Power and Hand)



■ HAND TOOLS (Saws, hammers, groovers, etc.)



■ SLIP ROLL FORMERS (Power and Hand)



■ RING AND CIRCLE SHEARS



■ PRESS BRAKES AND BAR FOLDERS



■ LEVER PUNCH AND SHEAR

It pays to check America's most complete line for your sheet metal working jobs

It's simple, direct and *profitable*: Look at the jobs you want done and then look to Niagara. Outline your exact requirements to the dealer who handles this all-inclusive line in your area. He'll not only be able to offer you the *right* machines in the *right* sizes, but the *best* machines for *your* needs. That's because the Niagara line is not only the *most* complete, but the *most* advanced in design.

For proof without obligation, write for individual bulletins on any Niagara machines and tools, a few of which are listed and illustrated on this page.

NIAGARA MACHINE & TOOL WORKS • BUFFALO 11, N. Y.

District Offices: Buffalo • Cleveland • Detroit • New York • Philadelphia

Dealers in principal U. S. cities and major foreign countries

NIAGARA



George:
Use this page as a
check list to get literature
N.M.T.

WITH THE ASSOCIATIONS

(Continued)

Georgia Contractor Wins Tax Suit

THE ROOFING and Sheet Metal Contractors' Association of Georgia reports that the claim of a Georgia sheet metal contractor against the state of Georgia for refund of sales tax has been settled in favor of the contractor. The principle involved, according to B. L. Noblitt, secretary of the Georgia group, was whether sales tax "applies only to materials purchased by a sheet metal or similar contractor when such materials are continuously installed into real property, or whether the tax applies to materials, shop labor, profit, and other costs incurred in the portion of work performed in the shop, exempting only labor at the job site." The Georgia association supported the contractor's case through financial contributions and in other ways. Mr. Noblitt points out that here is another instance where the concerted effort of an organized group can accomplish results far beyond the reach of an individual working alone.

OHI to Produce Oil Heat Film

THE BOARD OF DIRECTORS of the Oil-Heat Institute of America has approved a resolution providing for advancing \$15,000 to the Distribution Div. for the production of a 14 minute color film promoting oil heating to the general public. This film, which can also be shown in black and white, is primarily designed for broadcast showing over local television stations. In addition, copies will be available for local groups such as clubs, chambers of commerce, schools, institutions, etc.

Fox Valley Gets Selling Tips

SUGGESTIONS ON HOW to sell better heating systems were passed along to members of the Fox Valley Furnace and Sheet Metal Contractors Association at its March meeting by Lou Reining, Elwill-Reining and Co. Mr. Reining pointed out that more profit could be obtained by adding accessories to the heating system whose job it is to provide better control of temperature and humidity.

In discussing the importance of the right relative humidity level for a home during the winter, Mr. Reining suggested that all humidifiers be controlled by a humidistat. Without the humidistat, there can be no control, and, as outside temperature decreases, the humidity level will drop, increasing the discomfort brought about through the development of static electricity and its discharge where body contacts are made with metal objects.

The sale of a humidifier and its control often is the difference between customer satisfaction and dissatisfaction with the entire heating system, he said.



NEW OFFICERS and directors of the Detroit Warm Air Heating Association are (from left, seated) Edward Behm, director; William O. Smith, treasurer; Earl McKenna, president elect; C. J. Kreinbring, past president; and D. L. Cain, director. Standing are A. W. Keats, director; Anthony Addis, secretary; Albert Norris, vice president; N. J. Biddle, executive secretary; and Robert Miller, Robert C. Look and Stanley Craft, directors.

Detroit Dealers Elect Officers

AT ITS RECENT ANNUAL MEETING the Detroit Warm Air Heating Association elected officers and directors to serve for the coming year. Earl McKenna is the group's new president, with Albert Norris serving as vice president and William O. Smith as treasurer. Directors are A. W. Keats, Robert Miller, Robert C. Look, Stanley Craft, Edward Behm, C. J. Kreinbring and D. L. Cain. The above information and the photograph were supplied through the courtesy of Otto Schultz.

Form Air Moving Association

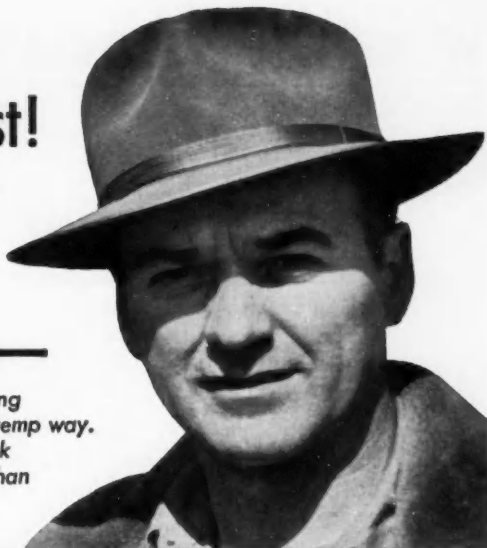
MEMBERS OF THE NEWLY FORMED Air Moving and Conditioning Association, Inc. recently elected R. W. Nelson of American Air Filter Co., Inc. their first president. J. F. Snow, Davidson Fan Co. and C. C. Cheyney, Buffalo Forge Co. were elected vice presidents. Secretary-treasurer of the group is W. H. Rietz of Ilg Electric Ventilating Co. Directors, in addition to the above officers, are M. L. Aitken, Robbins & Myers, Inc.; H. F. Brinen, Young Radiator Co.; W. H. Rutter, Burt Mfg. Co.; C. Espy Reed, Reed Unit-Fans, Inc. and R. W. McMahon, Modine Mfg. Co.

ASRE Hears Talk on Home Conditioning

RESIDENTIAL AIR CONDITIONING methods was the subject under discussion at a recent dinner meeting of the Central New York chapter of the American Society of Refrigerating Engineers. The speaker, Alwin B. Newton, vice president, design and research, the Coleman Co., spoke on "The Year 'Round Air Conditioning of New or Existing Residences Using Gas or Electric Power." His talk was illustrated with 20 slides.

"An Airtemp system installs fast! It's engineered by Chrysler!"

says Victor Skade,
foreman at Lee's Automatic Heating & Air
Conditioning, 1626 S. Cicero, Chicago, Illinois.



"We put in this cooling
system the easy Airtemp way.
The entire job took
two of us less than
4 hours!"



10:15
A.M.

"First we set the air-cooled condensing unit outside the house in the back yard. This took us about 15 minutes. (We set the condensing unit on concrete blocks which we've found are more efficient and less costly than a concrete slab.)"



11:30
A.M.

"Then we cut into the plenum of this forced air furnace to make way for the coil casing. The Airtemp V-type cooling coil fits right inside the casing, just above the heat exchanger. These casings are so flexible that we can handle any job."



12:00

"Here you see us just putting the Airtemp V-type cooling coil inside the coil casing. In this home we didn't need to add a booster blower because the furnace blower was big enough to take care of both heating and cooling."



2:30
P.M.

"Finally we connected the cooling coil to the outdoor condensing unit with refrigerant tubing. One tube carries liquid refrigerant to the cooling coil, another tube returns gas to the condensing unit. After we tested for leaks, she was ready to go."

"We've found that installing a cooling system is no problem at all with Airtemp," says Mr. Skade. "I know that Chrysler engineers have made sure the equipment we have is flexible enough to take care of any job. Whether you're adding on cooling coils with an outdoor condensing unit, or if you're installing complete yeararound air conditioning in a new house, it's easy. Just a few training sessions with our Airtemp fieldman taught us enough to handle any residential installation. Besides, Airtemp gives us full instructions covering every job we do."

For full information on a high-profit Airtemp franchise, write to: Airtemp Division, Chrysler Corporation, Dept. AA-4-56, Dayton 1, Ohio.



AIR CONDITIONING • HEATING FOR HOMES, BUSINESS, INDUSTRY

WITH THE ASSOCIATIONS

(Continued)

Coming Events

- Apr. 16-17—Sheet Metal Contractors Association of Illinois, Inc., annual convention. Abraham Lincoln Hotel, Springfield, Ill. Jay E. Harms, Secretary, 1619 N. Sheridan Rd., Peoria, Ill.
- Apr. 18-19—Minneapolis Indoor Comfort Conference. George Zingsheim, Chairman, 301 N. 7th St., Minneapolis.
- Apr. 19-21—Gas Appliance Manufacturers' Association, annual meeting. The Greenbrier Hotel, White Sulphur Springs, W. Va. H. Leigh Whitelaw, Managing Director, 60 E. 42nd St., New York 17.
- Apr. 23-24—Denver Indoor Comfort Conference. J. H. Singleton, Chairman, 1830 Market St., Denver 2.
- Apr. 26-27—Salt Lake City Indoor Comfort Conference. Alan E. Huish, Chairman, 960 S. Main St., Salt Lake City 4.
- Apr. 27-28—Roofing and Sheet Metal Contractors' Association of Florida, annual convention. Suwannee Hotel, St. Petersburg, Fla. Don Brown, President, 735 17th St., N., St. Petersburg.
- May 7-9—Air-Conditioning and Refrigeration Institute, annual meeting. The Homestead, Hot Springs, Va. George S. Jones, Jr., Managing Director, 1346 Connecticut Ave., N. W., Washington 6, D.C.
- May 9-12—Sheet Metal Contractors' National Association, Inc., annual convention. Shoreham Hotel, Washington, D.C. J. D. Wilder, Executive Secretary, 170 Division St., Elgin, Ill.
- May 14-15—National Association of Sheet Metal Distributors, spring meeting. Hotel Roosevelt, Pittsburgh. Thomas A. Fernley, Jr., Executive Secretary, 1900 Arch St., Philadelphia 3.
- June 3-6—American Society of Refrigerating Engineers, semi-annual meeting. Sheraton-Gibson Hotel, Cincinnati. R. C. Cross, Executive Secretary, 234 Fifth Ave., New York 1.
- June 11-15—Oil-Heat Institute of America, Inc., exposition and annual convention. The Coliseum, New York, N.Y. R. H. L. Becker, Managing Director, 500 Fifth Ave., New York 36.
- June 11-15—Society of the Plastics Industry, Inc., Seventh National Plastics Exposition and Conference. The Coliseum, New York. B. S. Montell, Secretary, 67 W. 44th St., New York 36.
- June 12-13—National Warm Air Heating and Air Conditioning Association of Canada, annual convention. King Edward Hotel, Toronto. D. M. W. Wilson, Managing Director, 4195 Dundas St., W., Toronto 18.
- June 18-19—National Heating & Airconditioning Wholesalers, Inc., summer meeting. French Lick-Sheraton Hotel, French Lick Springs, Ind. W. R. Bull, Executive Director, 1200 W. Fifth Ave., Columbus, O.
- June 18-20—American Society of Heating and Air-Conditioning Engineers, semi-annual meeting. Shoreham Hotel, Washington, D.C. A. V. Hutchinson, Executive Secretary, 62 Worth St., New York 13.
- June 21-24—Carolinas Roofing & Sheet Metal Contractors Association, annual convention. Ocean Forest Hotel, Myrtle Beach, S. C. Julian M. McKeithan, Secretary, 1219 Fairway Dr., Wilmington, N. C.
- June 26—Society of the Plastics Industry, Inc., Thermoplastic Structures Div., Structure Symposium. Roosevelt Hotel, New York. B. S. Montell, Secretary, 67 W. 44th St., New York 36.
- July 19-22—Roofing and Sheet Metal Contractors' Association of Georgia, annual convention. General Oglethorpe Hotel, Savannah, Ga. B. L. Noblitt, Secretary, P. O. Box 1196, Augusta.
- Dec. 3-5—National Heating & Airconditioning Wholesalers, Inc., annual convention. Deshler-Hilton Hotel, Columbus, O. W. R. Bull, Executive Director, 1200 W. Fifth Ave., Columbus, O.

CRANE

LIFE advertising sells year 'round comfort to Mr. and Mrs. Average Family

Want to know how this full-color advertisement can help you?

If you just take advantage of Crane's offer it can . . . it *will*!

A complete array of tie-in promotional material is yours—free for the asking! Material that will let Mr. and Mrs. Average Family know that your store is the local headquarters for Crane air conditioning.

You will get beautiful full-color direct mail pieces, large window posters reproducing the LIFE advertisement, exciting wall posters, attention-getting window streamers, plus "Advertised in LIFE" stickers for your Crane products on display!

In addition, you will get hard-hitting newspaper ad mats that will tie in directly with Crane's LIFE advertising—and Crane will pay up to half the cost!

So why wait? The time to make your plans for spring and summer selling is now (*before this Crane ad appears in LIFE May 21st*). Call your Crane branch or Crane wholesaler today.

CRANE CO.

General Offices: 836 South Michigan Avenue, Chicago 5
VALVES • FITTINGS • PIPE • KITCHENS • PLUMBING • HEATING

CRANE

Now...a heating plant that
air-conditions in summer




Here's a furnace that doesn't take a summer vacation! New Crane Year 'Round Air Conditioner is a heating plant in winter, a cooling system in summer—all wrapped up in a cabinet so small you can fit it in a closet.

During those sweltering summer days, when other furnaces just take up space, your Crane Year 'Round Air Conditioner really earns its keep. It takes the mugginess out of the air and keeps your whole house crisp, dry, and cool 24 hours a day. You live better, sleep better, feel better all summer long.

And, when the chilly days of autumn come, your air conditioner changes into a furnace. It automatically distributes even warmth throughout every room—without drafts. And, because it's such a penny-puncher, it gets more heat out of the fuel—either oil or gas.

Best of all, you don't have to be a millionaire to live like one. You can have a Crane Year 'Round Air Conditioner in your home for only a little more than a furnace alone. Why not call your Crane Dealer for a free estimate now?

CRANE CO. 836 South Michigan Avenue, Chicago 5, Illinois
VALVES • FITTINGS • PIPE • KITCHENS • PLUMBING • HEATING

HEATING

Crane offers a complete line of Year 'Round Air Conditioners. Counterflow and Hi-Boy models. Gas or oil fired—air or water cooled, two-, three- and five-ton sizes.

Honeywell announces the new

2-zone balancing system

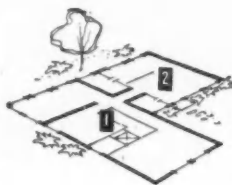
with only one motor

*Revolutionary new system provides constant air flow
through the furnace or cooling coil*



As you can see by the diagram above, the Honeywell 2-Zone Balancing System uses only *one* motor to control the dampers of *two* zones. And it's done by means of a simple linkage! The motor doesn't switch dampers to conventional open and shut position, but provides a *modulated* control which proportions the flow of air to each zone as required.

By gradually decreasing the flow of air in one zone while increasing it in the other, the dampers provide



a true balancing system for both zones.

One thermostat controls the heating or cooling unit to maintain the proper temperature called for in its zone. The other zone thermostat controls the damper motor, balancing the air flow and maintaining the temperature called for in its zone. When either thermostat is fully satisfied and requires no further heating or cooling, the other thermostat takes complete control of the heating or cooling unit.



Honeywell's durable modulating motor, the M829A, is designed specially for low cost zone control. And now you can offer it as part of a simple, single-motor, 2-Zone Balancing System that brings the price way down below that of conventional two-motor systems.

The M829A is noiseless and has no gears or pumps to get out of order. It can be mounted in any position to provide a *measured* amount of heating or cooling through the duct. It is easy to install—easy to wire.



New simplified wiring panel for heating—cooling systems.



Clock Thermostat



Honeywell Round

Your choice of these thermostats

For heating and cooling

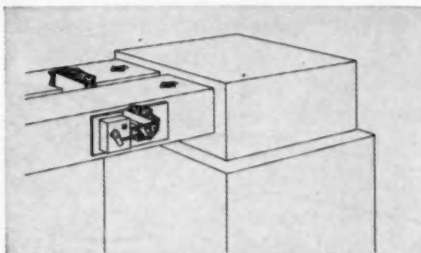
For complete information on the new Honeywell warm air zone control system, or details on wet heat zoning equipment, call your local Honeywell office. Or write Honeywell, Dept. AA-4-88, Minneapolis 8, Minnesota.

112 offices across the nation

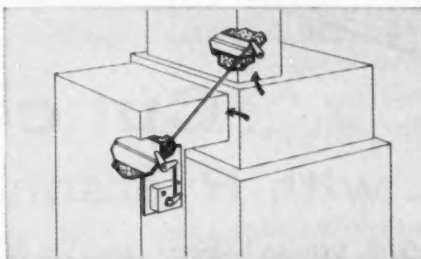
As a dealer, your sales potential with this economy-priced, easy-to-sell system is enormous!

Split-level homes, L-shaped homes, homes with basement recreation areas—almost all types of homes in fact—lend themselves by design and family living needs to a two-zone system.

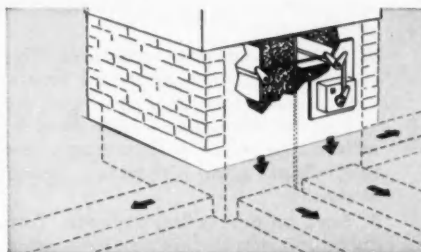
And the Honeywell Single Motor system is made-to-order for *low cost* two-zone control. It can easily be installed on any type of new home or existing warm air system. Below are some typical installations.



Parallel duct system above shows both dampers on a single shaft.



Split-level home can use this duct damper and linkage arrangement.

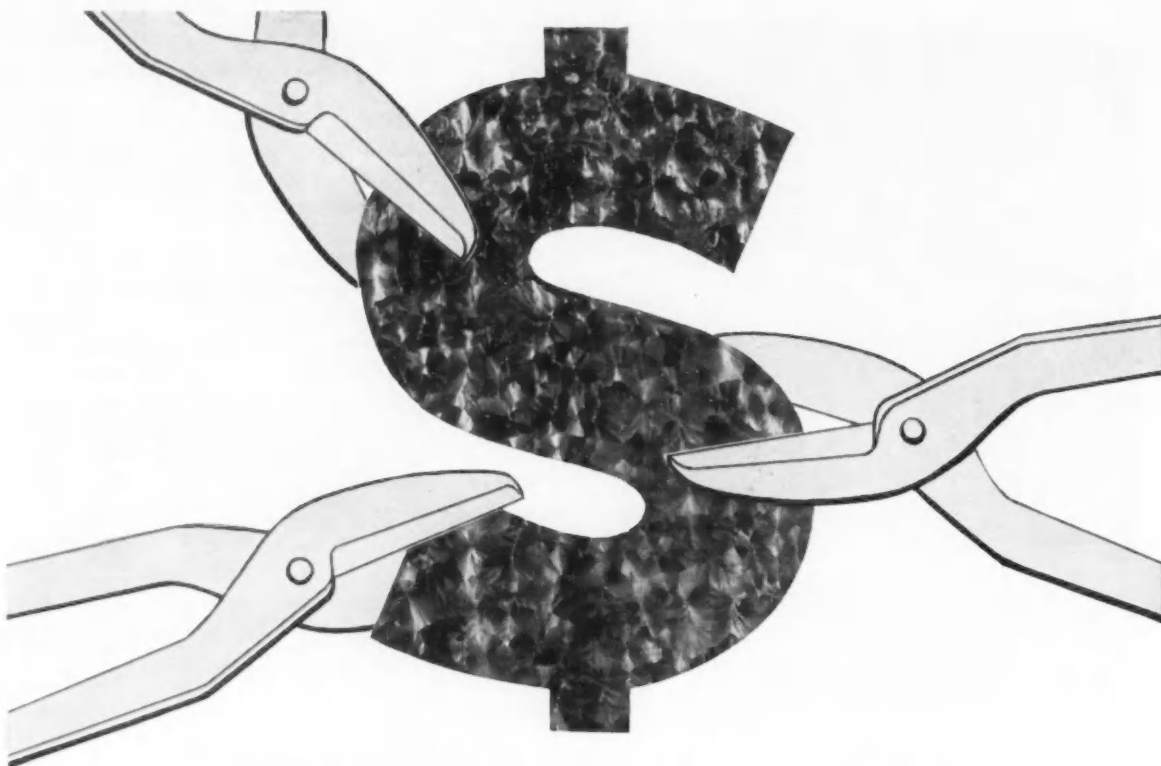


Counter-flow furnace can utilize this arrangement for forced warm air perimeter heating.

MINNEAPOLIS
Honeywell



Zone Control



Cut costs 3 ways! with Ryerson Service on Galvanized

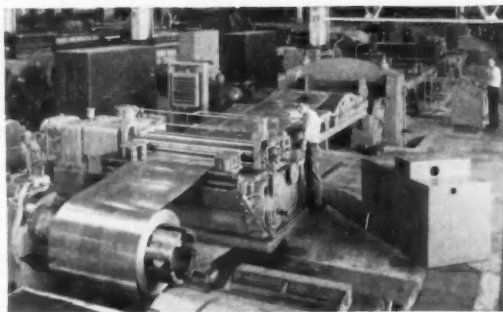
1. Save on inventory costs. You don't have to worry about tying up capital and shop space with steel inventories . . . you can depend on Ryerson for prompt delivery from the world's largest stocks.

2. Save by reducing scrap loss. You don't have to pay sheet steel prices for scrap . . . you can reduce scrap loss to a minimum by taking advantage of our cut-to-length service. In fact our wide range of coil widths may often enable you to eliminate scrap altogether. Pattern sizes also available.

3. Save on processing expense. You can also reduce capital investment in processing equipment, cut maintenance costs and eliminate extra material handling expense by putting our extensive modern facilities for quick, accurate cutting to work for you.

And, of course, you can count on Ryerson for galvanized sheets that are bright, ductile, true-to-gauge, and uniform in coating—sheets that

give you a head start on high quality products. Also, on a single order you can include every kind of steel that you need—hot and cold rolled carbon steel, stainless, Ry-Ex expanded metal, bar-size angles, bands, etc. So save time, trouble and money—every time, call your nearby Ryerson plant when you need steel.



RYERSON STEEL

In stock: Carbon, alloy and stainless steel . . . sheets and strips, bars, channels, angles, plates, tubing, metal-working machinery & tools

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI • CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE



Take Advantage of New Industry Service

DURING THE 1930's the general public recognized the many advantages of forced warm air heating for homes and the industry began to grow by leaps and bounds. In fact, it grew so fast that technical information on system performance lagged far behind the rapid development and improvement of equipment. The industry's association — the National Warm Air Heating and Air Conditioning Association — began its program of accumulating and evaluating the practices being followed in the field. The association also had underway at the same time the important research program at the University of Illinois, which of course still continues.

As fast as new information became available and was found to be an improvement over established practices, manuals were published that helped dealers engineer and install better heating systems. It was found that the sale of manuals by mail was too slow a way to spread technical information as widely as desirable. To expedite the dissemination of the information, two-, three- and four-day short courses were conducted.

All these efforts helped (and continue to help) a great deal — but the industry continued to expand at such a rate that more schools were added to the training program, and many manufacturers sent engineers to learn how to conduct courses and in turn set up their own schools. (During 1955 there were some 900 manufacturers' schools.) Wholesalers joined in the educational effort, sponsoring or holding many local schools.

The growth of the residential air conditioning field, together with further developments in warm air heating, placed a greater burden on those teaching new men entering the industry and helping established dealers to handle the additional work coming their way. The many improvements made in recent years — in both heating and cooling — have made it more difficult and more important for dealers to keep informed on all the skills and knowledge that aid in providing year 'round comfort.


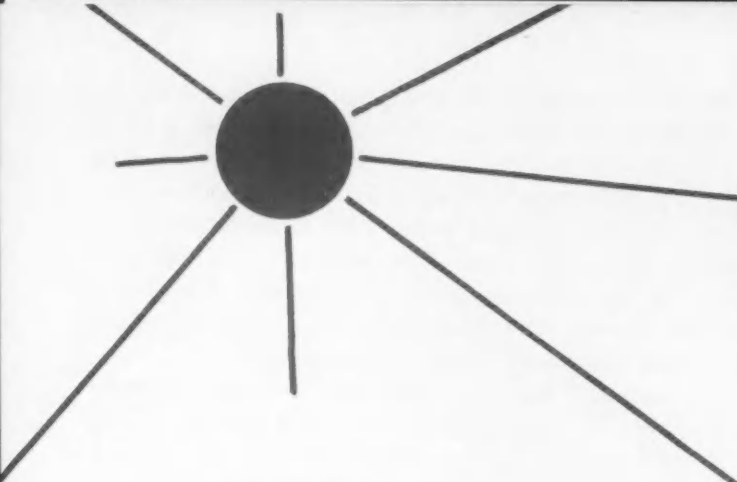
To see that helpful information is collected on field practices under actual operating conditions, a mobile laboratory has been in use for over six years by NWAHACA personnel. The data obtained from this source, plus the information collected by manufacturers and the results reported by the research staffs at the Universities of Illinois and Minnesota have created another problem — how to spread this vital know-how as rapidly and as widely as possible.

The National Warm Air Heating and Air Conditioning Association has hit upon an important idea — an annual technical conference where members of the industry can gather to get and to contribute valuable information. The threefold purpose of the conference is:

- 1) To provide a forum for the more rapid release of association-sponsored research.
- 2) To inform the industry of scientific and technological advancements and their possible effects upon warm air heating and air conditioning.
- 3) To provide design and engineering personnel with usable technical information.

The first such technical conference is scheduled for next month — May 24-25 — at the Edgewater Beach hotel, Chicago. Further details are given on pages 80 and 81.

All members of the warm air heating and air conditioning industry are invited to attend. It's an important new industry service that should offer much of value to those who take advantage of the opportunity.



Dealer Finds Big Market for Evaporative Cooling in Dry Climate

A TV weather forecast, stepped up advertising, personal contacts and installation of year 'round air conditioning in housing projects have paid off in increased acceptance for this type of cooling in arid regions of the country

By Ruel McDaniel

EVAPORATIVE COOLING has tremendous profit possibilities for heating, ventilating and air conditioning dealers, particularly in the more arid sections of the nation, according to the experience of Paul Hood, president of General Metals, Inc., Albuquerque, N. M.

The company has installed about \$75,000 worth of evaporative cooling equipment during the past 12 months and present contracts indicate a substantial increase over that figure for this year. Mr. Hood recently closed a contract for installation of evaporative cooling and warm

air heating combination units in 150 brick homes under construction in Albuquerque's Altura addition.

The average installation in these homes amounts to about \$600, which brings total business in sight from this project alone to nearly \$100,000

General Metals' business is not confined to building projects alone. The company develops business among individuals who are building new homes as well as those with older homes who are prospects for summer cooling.



CUT-OUT provides for vent in new development home. Grilles are made in the shop



DUCT WORK for cooling and heating is installed as soon as framework is erected in each of 150 homes in the project



BIG PROJECT job for General Metals was installing heating and evaporative cooling in 150 homes in Albuquerque housing development

It does a considerable amount of work in the commercial field also.

Mr. Hood has been installing evaporative cooling systems for the past six years, but about two years ago he went after the business with a stepped-up advertising and merchandising program, after studying the vast market potential for this type of cooling in an arid climate.

He does not believe effective evaporative cooling is necessarily confined to areas of relatively low humidity.

An evaporative cooling system has excellent sales possibilities because of its low installation, maintenance and operating costs, he points out — a $\frac{1}{2}$ hp motor will handle an evaporative cooler for a large three bedroom home.

In spite of the low cost of installation and operation, Mr. Hood says, evaporative cooling systems in his area are capable of lowering the temperature from 20 to 30 deg.

The company sells its evaporative cooling systems and its combination cooling-forced air heating systems through consistent advertising and personal contacts.

Good Contact Men Supplement Promotions

Advertising develops inquiries. Estimator-salesmen follow up these inquiries, make surveys of proposed jobs and quote prices on the spot.



CHECKING DUCT WORK just completed in General Metals' shop is the president of the firm, Paul Hood

"It is important that these contact men know enough about the cooling system and the combination units to make a correct survey of the premises," Mr. Hood stresses, "and for that reason we are especially careful in the selection of men for these contact jobs. We have not yet installed an evaporative cooling system that did not please the customer, and a big reason for that is the caliber of men who make the contacts and surveys. We know what equipment the job needs before we touch it."

The best paying advertising the company has done in its six years of business in Albuquerque, Mr. Hood declares, is a daily weather program on TV. In late summer and through the fall months, heating equipment is featured. Evaporative cooling is emphasized during the late winter and spring months.

The program comes on daily at 6:30 p.m. and lasts five minutes. It is interspersed with spot announcements from the company, tying up directly with the weather.

TV Viewers Made Comfort Conscious

"People are weather conscious when they listen to the report," Mr. Hood points out, "and they are receptive to suggestions for cooling when the weather is becoming hotter and for heating when the prediction is for colder weather."

Mr. Hood has been able to improvise and design ducts, grilles and vents to fit many individual jobs. It was this ability that landed the contract for cooling and heating the 150 home project.

These homes contain combination heating-cooling installations. The center of each cooling system is a 4000 cfm evaporative cooler on the roof. Cooled air is distributed through ducts of varying dimensions, largest of which are 8×36 in. Grilles which direct the air into various rooms range in size from 18×6 in. in the large living room to 10×6 in. in the bath.

The core of the heating system is the furnace beneath the floor. To change from the evaporative cooler cycle to the heating cycle, the dampers to the evaporative cooler are closed, the dampers to the furnace are opened and the gas or oil burning furnace is started.

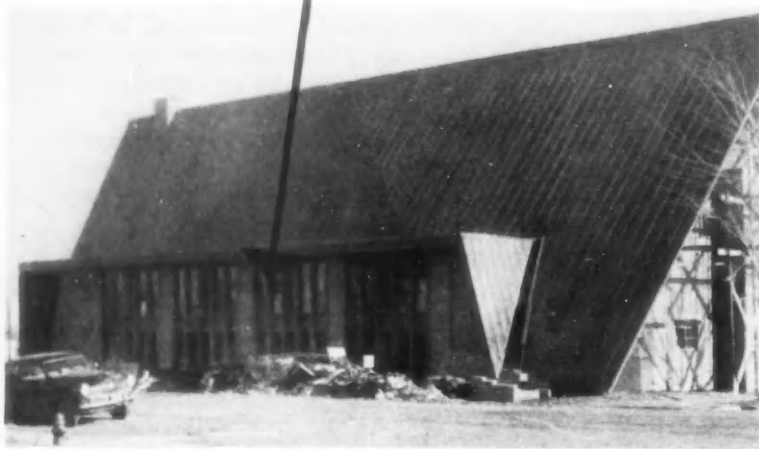
Both the cooling and heating units are thermostatically controlled, so the temperature may be set at any desired point.



DONALD KUETTEL, shop foreman (left), and Fred Kuettel, Jr., inspect the fruit of their father's inventive mind—a machine which turns out the T bars used in corrugated metal structures

Contractor Turns Double Profit from

1) On-the-job costs are reduced by fabricating installing it immediately; 2) the door is open to future reward



COPPER SHEET for church roof was fabricated in 8 ft lengths in the shop with new forming machine. Vertical standing seams run on an angle and miter into horizontal seams

NECESSITY, MOTHER of invention, has played a large part in the development of a machine for fabricating sheet metal roofs. This special machine, the only one of its type, was devised and constructed over a long period by A. W. Kuettel, and his two sons, Fred and Donald, of A. W. Kuettel and Sons Sheet Metal and Roofing Co., Duluth, Minn.

The Kuettels decided they would attempt to develop such a machine when they were awarded the contract for roofing homes in Babbitt, Minn., where a mining company had its taconite mining and processing works. Much of the construction was being carried on during the winter when severe sub-zero temperatures



TWENTY MILES of T bars are checked by Fred Kuettel, Jr., for shipment to company's metal sliding projects

Roofing Machine

**sheet metal roof in the shop and
by manufacturing his invention**

can slow or even stop work on a project. The mining company wanted a one piece vertical seam roof with no cross seams.

After discarding several ideas and designs, the Kuettels came up with the machine they thought would accomplish exactly what they needed. This machine now occupies a 4 × 6 ft space in the firm's shop, and, if the job merits, also can be taken on location. Recently, the original machine was rebuilt so that it is now adaptable for forming other types of sheet metal products. One of these variations is the forming of T bars, which are used for corrugated metal structures, with the insulation installed between the T bar and the corrugated metal siding.

When the word of the machine got around to other sheet metal contractors, the Kuettels were visited by representatives of firms throughout the Midwest, including an officer of a leading steel company. The Kuettels were quick to obtain patent rights on the invention. They are

currently considering a manufacturing and distribution agreement with another company on a royalty basis.

After using the machine to install roofs for projects ranging from homes to churches, they have found that the cost is about 80 percent less than when using the conventional method of forming the same types of product on a brake. Various types of metals can be formed in the machine, including paint-grip galvanized steel, terne plate, copper and aluminum.

When used for roofing work, sheets are ordered from the mill in suitable widths in rolls of 2000 to 3000 lb each. The rolls are then cut to proper length to fit individual rafter requirements. The flat steel is fed into the machine and comes out completely formed for a standing seam roof. Enough roofing material for eight average size homes can be transported on one truckload. When this load of fabricated material arrives at the building site, it needs only to be installed with no additional forming necessary.

The Kuettel company supplied roofs of this kind for 110 homes at the taconite development, 50 at another taconite works on the north shore of Lake Superior, and 200 installations at the site of a renewed copper mining venture in Michigan's upper peninsula. The Kuettel method was particularly beneficial at the copper mining project as a completely new town was being built during the coldest months of winter. Accumulated snow in the area—heaviest in the United States—averaged about 3 ft.

With conventional building methods, snow first had to be removed from house tops, and the paper that had been covered with ice and snow replaced with new paper before the standing seam roof was installed. This entire job increased costs \$21.60 per house. This figure is broken down in this way: \$9.60 for six hours of one laborer's time for snow removal; \$11 for new paper and \$1 for additional handling charges. The Kuettels reasoned that a builder could save most of these winter costs by laying the roof immediately after putting on the paper. If roofing materials could be fabricated in the shop, transported to the job and immediately installed, the problem would be solved. Of course, even during the summer months, the prefabricated metal roofing requires much less time to install.

Profits Come from Far Afield

Keuttel Sheet Metal and Roofing Co. has been in business for more than 30 years and employs an average of 50 people. On occasions the staff uses as high as 200 journeymen when large contracts are being fulfilled. The Kuettels have gone far afield, working on projects as distant as the west coast.

A lesson in putting know-how to work has been demonstrated by the Kuettel family. Their philosophy is: if you find it impossible to buy equipment for a particular job, develop that equipment yourself and not only gain the benefits of a job more easily and economically done, but also reap a financial return from the invention.



This is another in a regularly-scheduled group of articles appearing in American Artisan under the general heading " 'TRAINING PROGRAM' . . IN PRINT." These articles are especially prepared to help dealers in developing know-how in all phases of their organizations. Previous articles have dealt with electrical problems as they affect the dealer's air conditioning installations, with humidity control using a heat pump, with various management techniques, and with two methods of air distribution for modern homes. This month we turn to investigation of the problems involved in air conditioning a wet heat house — a timely subject for dealers who are capitalizing on Operation Home Improvement to explore the modernization market.

How to Air Condition



A Wet Heat Home

Starting under the most adverse conditions — wet heat, completely furnished home and no basement — this dealer presented a plan that convinced the owner he should go "all out" and produced a highly satisfactory cooling system by careful utilization of space and construction details



WET HEAT HOUSE now has summer air conditioning. Dormer above front door has a three-fold purpose: cross ventilation for attic, light for attic and on its left side, an outside air intake

MANY PEOPLE who have homes heated with other than warm air systems wish the builder had talked to a warm air heating dealer-contractor when the contract for the heating system was originally let. The problems involved in providing summer cooling for a residence with a wet heat system are multiplied and with each problem faced, the installed price becomes higher. Too many prospects for residential cooling are finding this fact to be one of the stumbling blocks in their quest for complete year 'round comfort.

The engineering for a central summer cooling system to be installed in a house with a wet heat system calls for careful consideration of all the usual estimating problems, plus the inconvenience of working in a completely furnished home. The addition of a cooling system to such a home with a basement does not entail the problems that face the dealer-contractor who takes on the job for a house built on a concrete slab.

Customers Want Finest Job

Here's how Shaker Air Conditioning Corp., Cleveland, went about providing a central system to handle an eight room house built on a concrete slab. Alvin Mintz, general manager of the firm, says, "When people with

homes heated with steam or hot water decide to put in a summer cooling system, they usually go all out and order the best and most complete system that can be installed. They feel the additional expense warrants the best equipment and engineering available. They indicate they want to do the job right, once and for all."

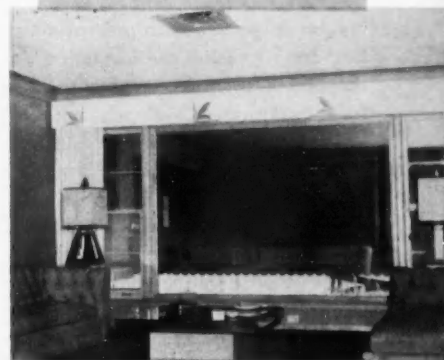
Although the additional cost involved in giving the customer a complete air conditioning system is considerably higher than for one that will serve the general purpose of summer cooling, this additional cost is well worth the satisfaction given as evidenced by those customers who have agreed to "do the job right." In the job reported here the attic space was utilized to locate the air distribution and return systems along with the cooling coils and other equipment. The air cooled condensing unit was located at the rear of the building at ground level (note in illustration how well the cabinet is camouflaged by the landscaping).

Attic Has Ample Ventilation

The blower, cooling coil, reheat coil and electric air cleaner were located in the attic, which is uninsulated but has adequate cross ventilation. At one end of the attic is a



AIR COOLED condensing unit is well hidden among the shrubbery; note metal window awnings which helped considerably in reducing cooling load



LIVING ROOM was supplied air through ceiling type diffuser. Note metal awning for protecting window glass from sun effect



double hung window; at the front and rear of the house dormers aid the cross ventilation and also provide a means for introducing outside air into the air distribution system.

Ducts Are Fully Insulated

Supply air is discharged into a rectangular duct system that passes down one side of the attic at the front of the house, crosses at the east end and returns along the other (rear and south) side. A square to round transition was used for takeoff ducts; the branch ducts were made from round pipe. Every foot of duct work was wrapped with 2 in. blanket insulation. Whenever it was necessary to run a duct toward the center of the attic, the floor was cut along the joist space and the duct installed below the attic floor which was then restored to its original appearance. Each seam in the insulation around the duct was taped both to hold the blanket in place and to prevent moisture from entering the insulation. In the dining room a combination diffuser and electric light was installed to supply conditioned air to the room without disturbing lighting arrangements.

The conditioned air in most of the rooms is discharged through diffusers located in the ceilings of the rooms. In the kitchen and dinette, however, because of the lighting fixtures, the best location was found to be high on the sidewall, just below the ceiling. Directional grilles distribute the cooled air in a pattern that prevents any streams of cold air from falling on occupants.

Electronic Filters Clean Air

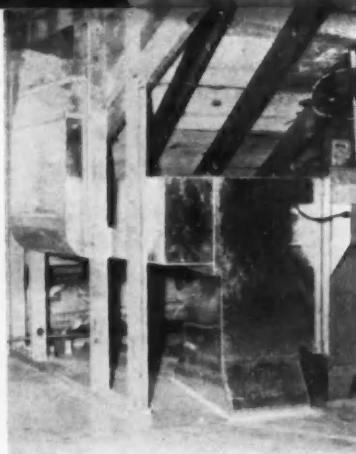
New homes are being built so tight that only small quantities of outside air can infiltrate. This is the way it should be because the introduction of any air into a building brings a certain amount of dust and dirt. Thus, every bit of air brought into the building should pass through an adequate filtering device. This house has an electric air cleaner. (Note illustration of equipment arrangement.)

Ventilation Air is Variable

The outside air for ventilation is brought in from an opening cut in the side of the dormer (see photograph). In the opening is a 30×10 in. section of copper duct with louvers. A $\frac{1}{2}$ in. grid screen keeps birds, leaves, and other airborne materials out of the system. The copper fitting was sealed between the wooden frame and the dormer to keep rain and snow out. Galvanized duct was attached to the copper intake grille and to the returned air system. A damper was installed in the outside air intake to adjust the volume of air admitted to the distribution system. For summer application 15 percent of the total volume was recommended. The handle of the damper is accessible to the home owner who may change the volume of air for ventilation as may be necessary when large groups have gathered for an evening party.

Two Ducts Handle Return Air

The return air system consists of two different return ducts joining at the common intake to the air conditioning equipment. One duct runs along the side wall of the attic from two separate ceiling return openings at one end of the house. The second duct comes from the ceiling openings near the living room and den. These rooms are so located that the return air must be picked up near the center of the attic floor. To eliminate any duct work above the floor that would interfere with using the attic as a storage room, the return air duct is



OUTSIDE AIR intake joins two return air ducts to connect to the return plenum before entering the electric air cleaner

brought back through panned joist space and connected as shown in the photograph at the common return intake to the conditioning equipment.

Charged Dust Particles Caught

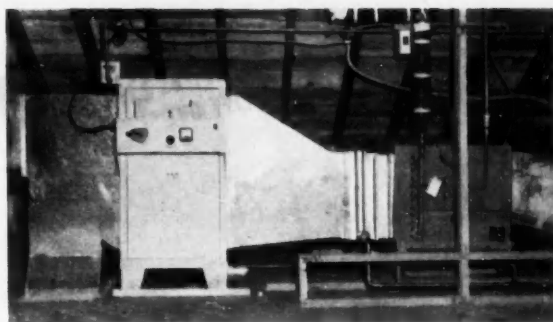
The return air passes into the electric air cleaner as shown. The small particles (0.001 micron) are given a positive electrical charge as they pass through an electrical field in the filter. As the air continues through the cleaner, the positively charged dust particles are deposited on the negative plates of the cleaner.

After two to four weeks of use (depending upon the amount of dirt and dust in the air) the air cleaner is washed to return the positive and negative plates to their original efficiency. The washing operation requires a supply of hot water from the domestic hot water system. Throwing an electric switch opens a solenoid valve which admits the hot water supply. Hot water is sprayed from a nozzle manifold that washes caked dirt from the filter plates. The drain from this washing operation flows by gravity to a convenient sewer or storm drain. The recommended piping for most electric air cleaners of this type is $1\frac{1}{2}$ in. OD iron pipe. Copper is acceptable but more expensive.

The electric air cleaner is set in a full size, soldered seam, $1\frac{1}{4}$ in. high pan to keep any water that may leak from the filter during washing from the plastered ceiling beneath the equipment.



AIR DISTRIBUTION system, insulated trunk line and branch ducts parallel attic side wall and roof edge



COOLING EQUIPMENT consists of air cleaner, reheat coil, cooling coil and blower assembly. Return air intake is at left

Clean Air Passes to Reheat Coil

After the air leaves the electric air cleaner it passes through a reheat coil. This coil is installed for winter operation of the ventilation system so outside air may be introduced in any quantity.

Next in line comes the cooling coil and blower assembly. The air in this system passes over the cooling coil before it reaches the fan for discharge into the duct system. However, any other arrangement suitable to the equipment location will serve as well. Located at both the intake and discharge sides of the coil-blower assembly are flexible duct connections to reduce machinery noise transmission. The return duct openings are lined with acoustical insulation to keep noise transmission to a minimum. Maximum dehumidification was obtained by installing a 6 in. round bypass duct around the cooling coil. Bypassing a portion of the air volume around the coil resulted in a lower cooling coil temperature and more moisture removal. The volume of air being bypassed around the cooling coil was varied by an adjustable damper installed in the 6 in. round duct.

Condensing Unit Placed on Slab

The air cooled condensing unit — located at the rear of the house — is on a 6 in. deep concrete slab. The slab is set 1 in. from the house foundation so vibration noise, sometimes generated by condensing equipment operation, cannot be transmitted to the building frame. The suction and

liquid lines and the power line to the condensing unit are protected by a copper shield until they reach the eaves of the house. Here they are supported by angle iron brackets to permit the lines to have any freedom of movement needed for expansion or contraction due to change in outside air temperature.

Heat Exchanger Ups Efficiency

Where the suction (1 $\frac{1}{8}$ in. OD) and liquid (1 $\frac{1}{2}$ in. OD) lines are run inside the house they are covered with 1 in. glass wool insulation. The insulation is vapor-proofed on the outside only and sealed at each joint, both at the end of each section and along the seam. The liquid line and suction line join in the attic shortly after leaving the conditioning equipment at a heat exchanger. (It is esti-

mated that a heat exchanger is responsible for a 15 to 20 percent increase in efficiency. It also prevents refrigerant flashing before it reaches the expansion valve.)

The metering device is a thermostatic expansion valve protected by a line filter. A low voltage solenoid valve is used to control the flow of refrigeration to the TXV and cooling coil and is operated by a thermostat located in the living room. When the thermostat calls for cooling, the solenoid valve in the liquid line is energized, permitting the refrigerant to flow to the TXV and the cooling coil. The increase in coil pressure is reflected at the condensing unit pressure control which starts the condensing unit, thus putting the cooling system into operation. Use of a solenoid valve in this manner prevents slugging in the base of the compressor when the equipment is started.

Awnings Reduce Equipment Size

A house this size could easily have required a 5 ton conditioning unit but by extensive use of awnings (note photograph of condensing unit) plus well insulated walls and ceiling, a 4 ton unit was specified. Satisfactory operation throughout the hot summer of 1955 indicated that this choice of equipment was correct. The awnings shown in the photograph are metal and are lowered to the bottom of the window during the brightest part of the day. As dusk approaches, the awnings are retracted. On cloudy days the angle of incidence can be altered to admit more daylight into the building.

WHAT'S YOUR PROBLEM?

The American Artisan's 'TRAINING PROGRAM' — IN PRINT will explain the whys and wherefores of some of the dealer's problems, tell what to do about them. You will want the members of your organization to study these articles carefully, keep them for future reference . . . If you have a problem you'd like to see covered, write Clyde M. Barnes, Editor, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

NOW!
is the time
Let us make a heating survey of your home for that needed.

MUeller CLIMATROL
COAL—OIL—GAS
FURNACE
Free Estimates
Courteous Service

Anytime
CALL C-1220 DAY OR NITE
for Immediate Service
We Repair All Make Furnaces
NO DOWN • 36 MONTH
PAYMENT TO YOU

Home of Heat
WALT STEVENSON'S
HOOSIER HEATING
AND SHEET METAL, INC.
108 Lafayette Ave., Terre Haute, Ind.

DON'T BE LEFT OUT \$6.95
Place Your Order For
FURNACE CLEANING

Included in Cleaning is:
• Clean Furnace
• Remove Soot/Slop in Chimney
• Reconnect Soot/Slop in Chimney
• Oil and Adjust Chimes
• Check Gases

ONLY \$6.95
Furnace inspected by experienced furnace men.
Flanges and screws serviced at small extra charge.
We will take your order anytime—
day or night. Dial C-1220.

Home of Heat
WALT STEVENSON'S
HOOSIER HEATING
AND SHEET METAL, INC.
108 Lafayette Ave., Terre Haute, Ind.

How “Test Dealer” Uses Newspaper Ads

How much a dealer-contractor should spend for sales promotion and how he should spend it are among the questions which are hoped to be answered by a “test dealer” program undertaken by Hoosier Heating and Sheet Metal, Inc., Terre Haute, Ind., and sponsored by Mueller Climatrol. As described in the March American Artisan, Hoosier's volume was almost doubled the first year of the test, and net profit was increased 40 percent.

A regular schedule of newspaper advertising is an important part of Hoosier's sales promotion. The copy themes used are described here for the benefit of other dealer-contractors thinking of starting similar promotion programs or wishing to check their own activities with Hoosier's.

ONE OF THE key approaches to prospects for heating and air conditioning equipment was a weekly advertisement placed last year in both morning and afternoon newspapers by Hoosier Heating and Sheet Metal, Terre Haute, Ind., dealer. This program was scheduled to run for 40 weeks and to use a two column ad (3¾ in.) varying in height from 6 to 7½ in. depending upon the type of layout and content of the ad. The ads were varied each week. In addition to the two column weekly ad, large special ads were used every three months and on specific occasions such as spring cleanup time, at the start of the summer cooling season and to hook up with any local civic activity. These special ads were 5 columns (9½ in.) wide and ¾ page (15½ in.) deep. In newspaper jargon the smaller ads were classified as 11 column in. ads and the larger ads as 75 column in.

Ads Slanted to Season

The ads were run on Friday of each week as this issue of the newspaper was found to receive more readership than any of the other daily papers published in Terre Haute. The ads were slanted to present an appeal that fitted the season. During cold weather the ad theme was warm air heating. The wording of the winter ads pointed out the importance of the economical operation of new style furnaces. It listed a type of furnace to suit every fuel and emphasized how little attention is required when automatic heating equipment is used to replace out-of-date hand fired equipment.

Fall ads stressed “Now” as the time to order a new heating system. Free estimates were offered along with an easy payment plan over 36 months. The company name and telephone number were always conspicuously located on the ad. A photograph of Walt Stevenson usually appeared in each ad along with an illustration of a furnace.

One of the larger ads was published at the end of February, when people were beginning to realize that the winter season was nearly over and were still aware of the troubles they encountered during previous months with their old equipment. The large ad contained photographs of Walt Stevenson, Ed Shake (the company's sales manager) and a large array of equipment, including highboy and lowboy furnaces, oil and gas conversion burners, unit heaters, incinerators, cooling units and year 'round units. Each model was briefly described and its application outlined. The theme of the advertising message was that Hoosier Heating and Sheet Metal, Inc. could help the reader with his heating and cooling problems, whether he had a new home or was contemplating modernization of an old home.

Cleanup Offer Stresses Savings

Another large ad was used to remind the newspaper reader that his heating system requires annual cleaning. This ad, published at the end of March, featured a special offer of a \$2 saving on an order placed within 30

Hoosier Heating and Sheet Metal's Promotion Program Includes Planned Newspaper Schedule on Heating, Air Conditioning, Other Products

days. A $2\frac{1}{4} \times 4\frac{1}{4}$ in. coupon was good for the \$2 credit. The coupon outlined the hard work a furnace does for 6000 hours during a heating season and specified the work that would be performed on a cleanup call. This special occasion ad also described the other services offered by Hoosier Heating and Sheet Metal, Inc. and made use of a generous number of photographs of equipment available.

Followup Ads Continue Theme

A followup schedule of smaller ads played up the cleaning of the furnace, removal and cleaning of the smoke pipe, recementing of smoke pipe to chimney, checking and adjustment of the fuel burner. The experience of the men trained for this job was not overlooked in the ads.

Small cleaning ads were also run once a month in April, May, June, July and August. The ads were varied each time. Sometimes the price was published, at other times the value of cleaning by a company that guaranteed the work was emphasized.

Summer cooling equipment received its share of the

advertising program. The first cooling equipment ad appeared early in March. The theme of this ad was the year 'round comfort most home owners have dreamed about. This ad explained how a summer cooling system could be included in most home owners' budgets. The benefits of cool, dehumidified, clean air during hot months were played up. Summer cooling ads were published in April, May, June and July. In each case the benefits of a summer cooling system were listed, together with some facts about the equipment that could produce them. On one occasion air cooled equipment was played up; on another occasion, water cooled equipment was offered. Generally, each ad emphasized that the equipment could be purchased on the time payment plan and that the first payment would not be due before October 1.

Mr. Stevenson prepared his own ad copy, aided by suggestions contained in the merchandising program offered by his furnace manufacturer. His ads always included his company name, address and telephone number in a prominent spot and in large, easily read type. Each ad stressed quality workmanship performed by experienced tradesmen and the availability of company employees day or night.

SPECIAL OCCASION ads like the one at right were supplemented by weekly program of two column ads on heating and, as in ad at left, air conditioning. This special ad, prepared in cooperation with the manufacturer, offered to redeem reader's old ash bucket for \$50 credit on a new furnace, emphasized availability of budget terms, and described firm's line of heating and year 'round units

Here you are...
\$50 REWARD!
FOR YOUR OLD ASH BUCKET...

to operate this
Mueller Climatrol
AIR COOLED
AIR CONDITIONING UNIT

NO WATER REQUIRED

Let us show you how you can have complete home cooling without the need for water. Mueller Climatrol is a self-contained unit that can be installed in your home or office. It is a simple and easy to install unit that will give you the most efficient cooling system available. It is a simple and easy to install unit that will give you the most efficient cooling system available. It is a simple and easy to install unit that will give you the most efficient cooling system available.

NO MONEY DOWN... FIRST PAYMENT OCT. 1ST
See how easy it is to get your new Mueller Climatrol. Just bring in your old ash bucket and we will give you a \$50 credit on your new unit. No money down, first payment October 1st.

WALTON'S
HOOSIER HEATING
AND SHEET METAL, INC.
104 Lafayette Ave., Terre Haute, Ind. C-100

as **TRADE-IN** on clean, automatic **Mueller Climatrol** heating

See your furnace man for more details. He'll show you how easy it is to get your new Mueller Climatrol. Just bring in your old ash bucket and we will give you a \$50 credit on your new unit. No money down, first payment October 1st.

WALTON'S
HOOSIER HEATING
AND SHEET METAL, INC.
104 Lafayette Ave., Terre Haute, Ind. C-100

BRING IN THIS AD WITH YOU TO

NWAHACA Technical Industry's Future

Accumulation and exchange of will define industry's position in the



ASSOCIATION aims, activities and functions outlined by President G. W. Denges



FIELD investigation findings on air conditioning duct heat gain reported by C. W. Nessel



PHYSIOLOGICAL aspects of residential air conditioning explained by M. K. Fahnestock

IN RECENT MONTHS there has been a considerable amount of predicting about the future of the warm air heating and air conditioning industry.

Whatever future changes take place within the industry can be considered either as a threat or as an opportunity, according to how well dealers and contractors have anticipated each change, and how well they have prepared themselves to meet each challenge.

With this belief in mind, the National Warm Air Heating and Air Conditioning Association has called its first annual Technical Conference to meet at the Edgewater Beach hotel, Chicago, on May 24 and 25, where engineers and technical men can discuss trends and developments which have been brought about or uncovered by research in the heating and air conditioning industry.

Inspect Long Range Outlook

While conference presentations will be technical, many of them will also be prophetic in nature, because they will reveal the extent of present knowledge of changes slated for the future. Those things about which we know the most will, in all likelihood, develop into practical applications the soonest.

To the warm air heating-residential air conditioning man each of the subjects will be of importance and interest whether it is generated out of what we need to know today or what we will have to know tomorrow.

If the heating and air conditioning industry, as a whole and as we now know it, continuously puts to full use the best technical knowledge at its disposal the future for dealers and contractors will be a bright one.

Is Industry Keeping Pace?

The Technical Conference can prove to be not only a guide post whereby the industry can check on the direction it is taking into the future but also as a speedometer against which it can evaluate how well it is keeping pace.

The conference is open to all members of the warm air heating and air conditioning industry. Registration fees are \$20 for each representative of NWAHACA members, \$30 for non-members.

The conference schedule, broken into four technical sessions, appears on the facing page.

Conference Maps

May 24-25

***important technical information
road ahead for heating and cooling***

Thursday morning, May 24

The Association, Its Manuals and Committees

G. W. Denges, Vice President, The Williamson Co., president, National Warm Air Heating and Air Conditioning Association

The Application and Utilization of Nuclear Energy in Residential Heating and Air Conditioning

Dr. Finn J. Larsen, director, Research Institute, Minneapolis-Honeywell Regulator Co.

How Research is Used in Manual Development

Lorin G. Miller, chairman, Educational Advisory Board, National Warm Air Heating and Air Conditioning Association

Pressure Losses in Fittings and Diffusers

M. V. R. Rao, research assistant, Mechanical Engineering Dept., University of Illinois

Thursday afternoon, May 24

System Balancing for Year-'Round Air Conditioning in Research Residence No. 2

J. R. Wright, research assistant, Mechanical Engineering Dept., University of Illinois

Balancing Year 'Round Air Conditioning Systems in Two Story Residences

Donald R. Bahnfleth, research associate, Mechanical Engineering Dept., University of Illinois

Heat Gain in Air Conditioning Ducts

C. W. Nessell, industry consultant, Minneapolis-Honeywell Regulator Co.

Friday morning, May 25

Solar Energy as a Source for Heating

A. L. Hesselschwerdt, associate professor, Mechanical Engineering, Massachusetts Institute of Technology

Physiological Adjustments, Environment and Comfort

M. K. Fahnestock, director, Physical Environment Unit, University of Illinois

Air Conditioning Using Gas as the Energy Source

W. L. Amann, assistant to general sales manager, Houston, Tex., Natural Gas Co.

Friday afternoon, May 25

Venting a Furnace

R. B. Engdahl, chief of fuels and air pollution research, Battelle Memorial Institute

The Impact of the Heat Pump in Residential Air Conditioning

S. F. Gilman, research section head, Carrier Corp.

The Value of Research to the Heating and Air Conditioning Industry

Frank J. Nunlist, Jr., Vice President, Mueller Climatrol Div., Worthington Corp.



RESEARCH and its importance to the industry emphasized by Frank J. Nunlist, conference committee chairman



YEAR 'ROUND system balance in two story homes described from test findings by D. R. Bahnfleth



MANUALS are products of constant research, presented in practical form, says L. G. Miller



Try This Recipe for a

Lead-to-Sale Promotion Plan

**Tested tools and techniques organized into a pattern
and combined with professional salesmanship will produce a
tightly-knit plan that pays off in increased sales**

By Robert G. Mihan
Merchandising Consultant

ANY ANALYSIS OF the sales problems in the warm air heating-residential air conditioning industry will turn up one fact common to many dealers who are unable to build sales volumes substantially. It's simply that too many dealers and their salesmen are selling short of their full capacity to increase sales.

We have our share of sales promotion-minded dealers in our field, who are equipped with all the basic ingredients of successful merchandisers. Some go all the way and reap their rewards accordingly. Others start off with a bang, then let down short of their goal.

Impartial investigation of selling techniques very often brings out one or more simple selling approaches

which have been neglected and which, when applied, make a good merchandiser out of a mediocre one.

Those dealers who are at the top because of successful merchandising plans are examples to follow. The others are the people who can join their successful cousins at the top of the heap, if they can spot their shortcomings and set about remedying them. What they need is a sales promotion plan.

Here's How it Works

Planned merchandising is basically the accumulation of applicable promotion ideas and the organization of these ideas to realize the full advantage of their total effectiveness. For example, the dealer who advertises gains new prospects, some of whom develop into customers. If he provides for shop display of his heating and cooling equipment, he has

How to Build



THE AUTHOR, a widely travelled merchandising consultant, has a background in sales which qualifies him as an outstanding authority in merchandising. Mr. Mihan has served as director of sales training and sales manager for various large companies in the heating-air conditioning and related fields, and has conducted sales development programs for dealers across the country.

added another aid to sales. Should he pay \$5 each to five friends for leads that eventually become sales, his business increases accordingly. Many other paths to sales will be discussed here but the example illustrates that sales increase as new selling impetus is added, and the net profit the dealer realizes from each new sales tool depends largely on how well he uses it and how well it fits into his plan.

To illustrate by extremes what can be done with a sound sales promotion plan, consider the case of the young sheet metal contractor whose father had died leaving him sole owner of a small shop which had done a fair amount of heating business, based largely on his father's know-how and contacts. While the son had been associated with the firm he had never been active to the point of learning all phases of the business and developing outside contacts. He sought advice on rebuilding the business.

Starting our approach on tested merchandising principles and applying facts, tools and ideas that have paid off for other dealers and contractors to his particular operation, we came up with a sales promotion

plan that is continuing to bear fruit in the form of a growing heating and cooling business. Here's what was recommended for him:

- 1) New store sign and modernization of the shop.
- 2) Expanded facilities to make room for display of equipment.
- 3) Consumer time payment plan.
- 4) Demonstration truck.
- 5) Newspaper advertising.
- 6) Soliciting of leads from old customers.
- 7) Participation in local club activities.
- 8) Direct mail program.
- 9) Consumer contest for oldest furnace.
- 10) Hire and train salesmen.
- 11) Effective prospect followup system.
- 12) Scrap book showing installations and testimonials.

Let's look into some of these general points a little farther. Obviously, the store sign, expansion and shop appearance will be subject to the individual's tastes, budget and requirements. Displays should be as dramatic and unusual as possible and again are subject to the individual's preferences supplemented by a wealth of tools and ideas which are available from

manufacturers, distributors and other sources. Some of these points have been discussed in detail in previous articles; others will be treated later in this series. A few words on other points should be helpful to a dealer who is interested in setting up an effective sales promotion plan.

Offer Time Payment Plan

The dealer and his salesmen should be thoroughly familiar with time payment methods which make it easy for the customer to own new heating and cooling equipment. There are five common methods of financing available to the consumer:

- 1) Direct bank loan.
- 2) FHA financing.
- 3) Finance company loan.
- 4) Cancellation of existing mortgage by refinancing to include modernization plans.

- 5) Open end mortgage (not available in all states).

Availability of long term consumer financing provides the dealer with an opportunity to tell the customer he can have a new heating system for "as little as fifteen cents a day" (or whatever the figure comes to under the particular financing method).

Sales Through Better Promotion

TRIED AND TRUE merchandising methods based on actual experiences by the author and by dealers he has interviewed are presented in this current series of articles as another Artisan feature, "Clinic for Advanced Salesmanship," designed to help dealers build sales volume with improved selling and promotion techniques. Comments and suggestions from dealers and their personnel will be welcomed by the author. Address correspondence to Robert G. Mihan, c/o Editorial Dept., American Artisan, 6 N. Michigan Ave., Chicago. Future articles will tell how to:

- Train new salesmen
- Improve salesmen's techniques
- Merchandise central air conditioning
- Develop sales personality
- Sell advantages, comforts and conveniences of heating, cooling equipment
- Present the health story to increase prospective buyers' interest in air conditioning
- Take advantage of the assistance available from distributor salesmen
- Sell the modernization market
- Stress quality components and justify the price of the equipment you sell
- Develop and use visual aids to train retail salesmen
- Develop and use selling tools to present your equipment to prospects
- Develop professional salesmen and close the sale
- Develop sales personality

Clinic for Advanced Salesmanship



This is a very important sales point, not only for prospects who can afford only a few cents a day, but also to close many cash sales when used as an approach to ease into the price discussion — many prospects who would be lost when confronted with a cash price at the outset of the sales talk become cash customers once the dealer is able to present the “few cents a day” plan while he is convincing them they can’t afford to be without the new equipment. Obviously, skillful presentation is the watchword here. Many prospects have the cash available for new heating and cooling systems and may be willing to spend it once they’ve been sold. But first they want to be told how they can buy the systems without touching their nest eggs. The successful presentation then, serves a double purpose for the dealer. It not only produces a sale, cash or credit, it also sets up the dealer or his salesman as a counselor in the prospect’s eyes — as a sympathetic friend and expert in comfort — someone he’ll be quick to recommend to his friends.

Demonstrate in Home

A visit to the prospect’s home by a salesman driving a demonstration truck adds drama to the sales story, and above all, offers the homeowner an opportunity to see, by comparison, what the new equipment has that his old installation does not. Quality features can be pointed out and improvements in design, efficiency, appearance and other characteristics can be demonstrated. The visit also gives the dealer or his salesman an

opportunity to analyze his prospect’s requirements.

Distinctive truck signs forcefully presented on a conspicuous background display the company name and function to many people wherever the truck happens to travel.

Two Types of Newspaper Ads

Newspaper advertising might be placed into two categories for most effective results for the heating dealer:

- 1) Promotional advertising tied in with modernization or other special promotions or events, possibly planned cooperatively with the manufacturer or wholesaler.

- 2) Small ads run regularly to promote the company name and identify it with heating, cooling and sheet metal work. The frequency and size of these ads should be commensurate with the dealer’s current need for new business but even during busy seasons the ads should be continued to build identification for the dealer.

Use the User

Ethical dealers who install quality equipment have a powerful aid to sales in the form of satisfied customers. Here are two ways of using this potential to the fullest:

- 1) Arrange — diplomatically — to take the prospect to an old customer’s home to inspect an actual installation. The prospect not only has the opportunity to observe the craftsmanship that went into the installation, but also can talk to the satisfied customer and identify himself with this person. Recommendation by a disinterested third party often clinches a sale over the best efforts of an expert salesman.

- 2) Keep old customers happy. Followup calls and fast response to service requests are the best builders of good will and establish a spirit of cooperation between the dealer and his customer so the homeowner will be glad to supply names of his family and friends who might be prospects. Also, the homeowner who

has been conditioned to think about the benefits of, say, year ’round air conditioning will be quick to talk about his new installation to visitors to his home.

Develop Mailing List

Direct mail is widely recognized as a must in any effective sales promotion program. A few dealers have shied away from this medium in the belief that compiling mailing lists and preparation of selling messages takes up more time than results would justify. Nothing could be farther from the truth. Mailing lists are available from many sources—there are firms who prepare such lists on order at a nominal charge, and the dealer’s own prospect and customer list provides an excellent starting point. Manufacturers and distributors have a wealth of attractive and effective direct mail pieces already prepared, and many will design and provide mailings for their dealers at low cost on the guarantee that the dealer and his salesmen will use them effectively and follow up productively.

Salesmen often follow up the mailings with personal calls. A good mailing piece often starts the prospect thinking about heating or cooling and opens his mind for the personal presentation of the product. In other words, well planned mailings pave the way and lay the groundwork that makes for a productive personal contact.

Make Followup File

To get the most out of his customer followup activities, the dealer will want to tabulate and organize all the information he needs on each customer and prospect so his and his salesmen’s calls can be timed to advantage and so the appropriate information can be presented quickly at each visit. Armed with this information, the salesman knows exactly what his presentation will be and will have the appropriate sales literature, estimates and other data ready to present forcefully and uncluttered by off-the-subject information which may

Name _____
 Street _____
 City _____
 First Contact Date _____
 Furnace _____
 Designed Heating Layout Yes _____ No _____
 Terms Quoted: \$ _____
 Dates to Recall _____
 Dates of Sales _____
 Products Sold _____
 Future Needs _____

Source of Lead _____
 Cooling _____
 Quoted Yes _____ No _____
 per month for _____ months

New Home _____
 Modernize _____
 Date Sold _____
 Phone _____
 Quotation \$ _____

PROSPECT CARD contains complete history of progress made in selling each prospect. Back side of card contains names, addresses and phone numbers of other leads supplied by the individual, together with dates each was contacted and sold

irritate the prospect and lose the sale.

A prospect followup file is the most effective system the dealer can use. All the information needed on each prospect can be condensed onto a 3×5 in. file card similar to the one shown on this page. All the items listed should be filled in to provide a full history of progress toward selling the prospect. Other leads supplied by the individual can be listed on the reverse side of the card, as a handy reference in case the dealer would like to present the original prospect or customer with a gift for each lead that turns into a sale.

Here's how to set up and use this file:

- 1) In file tabs labeled A to Z, place prospect cards for all customers you have sold.
- 2) In another section, tabbed 1 to 31 for each day of the month, file names of all prospects with whom you arranged for a later appointment that falls within the next 31 days.
- 3) Behind tabs labeled with each month of the year, place prospect cards for customers with whom you have set up appointments beyond the 31 day period. For example, if in January you have made an appointment to call again in about 90 days, you will place the prospect card behind the tab for April.
- 4) Behind a single tab labeled

Uncontacted Prospects, keep all cards which come up for immediate contact. Be sure to see the prospect on the day you promise to call. If no definite appointment was made, keep the card in this section a couple of days until you can contact the prospect.

5) In the Handle Immediately section are placed cards for all contacts you should make today. This tab obviously should be placed in front and calls should be given top priority.

Prepare Dealer Scrap Book

Nobody has ever disproved the old observation that one picture is better than a thousand words. You won't want to — and you probably couldn't — send your salesman out with a briefcase full of pictures and tell him to keep quiet during his sales presentation, but there's a tool that adds visual dynamite to the salesman's sales talk. It's the dealer scrap book, which presents pictures of and testimonial letters about actual installations your firm has made.

A good scrap book is nothing more than an accumulation of before-and-after photographs of installations and of the homes where the jobs were done, together with any other endorsements, correspondence, descriptions and other data the dealer thinks will add to the visual appeal. The

most convenient size and type is a three ring, 8½ × 11 in. binder with folded lucite pages to protect the photographs. Pictures should be of professional quality and suitable for enlargement to 5×7 in. Use a minimum of two new home installations, one of the outside of each house and another of the equipment installed in each. At least three or four before-and-after pictures of residential modernization jobs should also be presented, plus any commercial installations that might help land a store modernization job or add an element of prestige to your presentation to homeowners.

To these photographs might be added a testimonial letter from each customer whose home is illustrated, telling how the installation has improved comfort conditions in his home. If possible, see to it that testimonials from commercial establishments attribute a certain amount of new business to the cooling system or whatever equipment you installed.

These are some of the tools that will help put over the salesman's story. They are geared to the operation of the small dealer-contractor as well as the large one, and they are proved sales builders. Next month we will move into the prospect's living room to investigate the salesman's presentation of modern heating and cooling.



EXTERIOR SIDE PANELS are insulated with 4 in. batts before the sheets are fastened into final position



FINAL STEP in assembly is setting painted side of top cover in place over insulation batts

Sheet Metal Specialties



DRYER OVEN MANIFOLD, a specialty item that utilizes all the skills of the sheet metal craft, gets final touches

SPECIALTY WORK offers many advantages to the sheet metal contractor who provides this service for his customers. It assures a constant source of business to smooth out the flow of work through a shop. It provides something that outside men can do when inclement weather makes job site work hazardous, and when the work follows a set pattern it is possible to calculate costs and selling prices more effectively. The type of specialty work done in different shops varies from small stamped out sub-assembly parts to large complicated equipment, completely assembled. The Riester & Thesmacher Co., Cleveland, has several specialty lines they fabricate to customer specifications. One is a power ventilator in several different capacities and sizes. Another specialty item is a dryer oven manifold fabricated for a company that ships this type of equipment to many foreign countries. The manifolds shown here are scheduled for the island of Formosa.

Job Calls for Contractor's Skill

The oven manifolds are used as component parts of industrial dryers for drying veneer, plasterboard and fiberboard. The manifold, to quote the purchaser, is "a glorified form of insulated air duct." The manufacture of it requires accurate, painstaking work that only a good sheet metal fabricator can do.

The manifold begins as a framework of $\frac{1}{4}$ in. angle iron and 3.41 in. channels with braces and cross braces so placed that the air flow is not impeded. Dampers used to direct air flow are of 20 ga galvanized sheet metal. The framework is covered with an inside sheet of 20 ga material. All seams and joints are soldered. This sheet is painted with one coat of high temperature aluminum paint. Then the side panels for the outside metal covering are added.



FRAME OF MANIFOLD is made of angle iron and channels with cross bracing placed so air flow is not impeded



SUB-ASSEMBLIES AND COMPONENTS make it possible to utilize machine and workmen's time most effectively



PANEL FOR MANIFOLD is held by C clamps prior to fastening. Note completed panels stored at rear of shop

Make Slack Time Pay

. . . by bringing in new business and smoothing the work load. Here's how one contractor utilizes his skill and minimizes down time by prefabricating precision parts for specialty jobs

Heavy Insulation Required

The side panels are set in place with spacers between the inside skin and the outside panel. This 4 in. space between sheets is filled with batt type glass wool insulation. Before the side panels are set into position they are given a coat of the high temperature aluminum paint on the side that will lie against the insulation. This same paint treatment is given to the manifold top cover after it has been shaped to fit the contours of the oven doors.

Finally, the internal top sheet is covered with 4 in. of the batt insulation and the top cover is installed. The edges of the top and side panels are joined with a Pittsburgh lock and then soldered. The seams are soldered to provide a positive continuity between all metal parts and thus minimize electrolysis.

Parts Fabricated in Free Time

As is the case with most specialty items manufactured by sheet metal contractors, the completed item is usually fabricated from several prefabricated parts. This practice

applies in the case of the dryer oven manifolds. With this type of contract work it is possible to utilize extra time to complete the sub-assemblies and store them until required for the final assembly of the manifold. Two photographs show fabrication of the sub-assemblies used by Riester & Thesmacher Co. in their overall fulfillment of the contract for dryer oven manifolds.

The sub-assembly method of equipment fabrication permits the contractor to use shop space and shop equipment to the best advantage. The illustration of the insulated right angle sub-assembly shows a number of spare components for this part stacked against the wall and ready for immediate use. The machines required for cutting and forming these parts were kept in use when they might otherwise have been idle. The photograph of the rectangular panel shows how the parts are held in place by C clamps until they have been permanently fastened (usually welded in this operation). In the background are panels already completed and stored until ready for use in the final assembly operation. Also shown are panel components ready for use when the next panel is commenced.



AIR CONDITIONING HANDBOOK

**How to Solve Engineering
and Installation Problems**

How to Plan Piping, Select Pumps

**... allowing for their relationship
to each other and to the work to be done**

for Cooling Towers, Evaporative Condensers

**... for air conditioning jobs, Arti-
san's mail shows increasing interest in this
factor in the air conditioning picture**

By S. W. Reid
Air Conditioning Engineer
Gilbert Associates, Inc.

LIMITATIONS ON the use of water cooled air conditioners because of the strain on municipal water supply and disposal systems has brought increasing attention to the use of water saving devices.

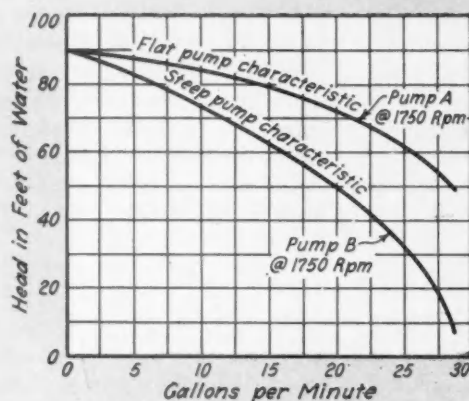
Dealers who see a possible limitation on the air conditioning market

because of the increasing number of city ordinances along these lines are recognizing the need for including specifications for water conserving systems with their bids for air conditioning jobs.

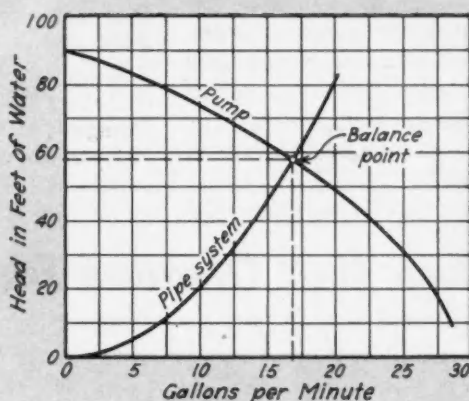
Evidence of how this foresight has paid off for some dealers suggests that a knowledge of the functions and relationships of piping systems and pumps as they pertain to cooling towers and evaporative condensers

is worthwhile for any residential air conditioning dealer.

Pipes and pumps, like ducts and blowers, are all terms that should strike a responsive note in the mind of the residential air conditioning dealer for they name means for conveying water and air, two elements which are commonly used in air conditioning. The fundamental characteristics of a pipe-pump system and a duct-blower system are substanti-



1 FLOW INCREASES as pump head decreases in centrifugal pump. Steep characteristic is more desirable for air conditioning



2 PUMP CURVE descends and system curve rises with flow increase; intersection shows gpm and head resulting from pump-system combination

ally the same. Both involve the flow of a fluid in a closed conduit and both have a mechanical device to maintain flow. Duct-blower systems have been discussed in previous articles of this series. This month our discussion will be devoted to pipes and pumps.

Pump application requires knowledge of capacity which is usually defined in terms of the number of gallons per minute the pump will deliver at a given pressure. Pressure in pump and water flow calculations is often more conveniently expressed as an equivalent number of feet of water. The conversion of pressure in pounds per sq in. to feet of water is made on the basis that a column of water 2.31 ft high will exert a pressure of 1 lb per sq in. at the base. If the column were 4.62 ft high the pressure at the base would be 2 lb per sq in. The net pressure difference across a pump is known as the pump head.

Less Head Means More Flow

Fig. 1 shows typical rating curves for centrifugal pumps — the type most commonly used for air conditioning. Design factors determine whether a pump will have a flat or a steep characteristic curve. For general service, the latter, as obtained with a pump having backward curved blades, is preferable since a

given change in head will have less effect upon the amount of water delivered.

The speed of a centrifugal pump, like the speed of a centrifugal blower, has a relationship to the quantity of fluid handled, the delivered pressure and the horsepower. The relationships are not exact, but they are close enough for practical calculations. The quantity varies directly as the speed, the pressure as the square of the speed and the horsepower as the cube of the speed. Thus, if the speed is doubled, a given pump will deliver twice as much water against four times the head and will require eight times the horsepower. Pump curves such as shown in Fig. 1 apply at constant speed. For any other speed a new and similar curve can be established using these relationships.

There is sometimes confusion in the use of the pump laws with respect to a speed change and the effect it will have on the water quantity, pressure and horsepower of a pump connected to a piping system. It must be remembered that these laws apply only to the pump characteristic curves such as shown in Fig. 1 and may be used only to establish new characteristic lines similar to the original but either above or below it.

To determine the amount of water a pump will send through a piping

system, it is necessary to understand the pump-system balance as shown typically in Fig. 2. The pump characteristic here is exactly the same as the steep line in Fig. 1. The system characteristic line has been added. For a given piping system which includes all elements through which water passes from the point where it leaves the pump discharge nozzle to the point where it re-enters the pump suction, it is not difficult to appreciate that the higher the initial water pressure, the more water will flow. The system characteristic curve is a graphic representation of this relationship. Fig. 2, therefore, shows one curve that illustrates that a pump can handle more water as the pressure against which it must pump is reduced, and another curve which shows that a given piping system can handle more water as the pressure across it is increased. The first curve descends with a flow increase, the second ascends with a flow increase. There is only one point where the flow and pressure read from either curve is the same. Any pump-system combination will always operate at such a balance point common to both curves. The balance point may or may not result in the desired flow. How close it comes is largely a matter of the designer's skill in sizing and laying out the piping system and in selecting the pump.

Head Combines Three Forces

Before continuing with more discussion of system balance, we should examine the elements of resistance to flow that combine to make the system characteristic. Since we are usually interested only in one point on the system curve and since this point must also lie on the pump

curve, we are also examining the elements that combine to make the head against which the pump must deliver the desired water quantity.

A pump must supply sufficient energy to do as many as three jobs in order to create flow in a piping system. The first job is the overcoming of frictional forces which develop as the result of flow. The second job

is the overcoming of the gravitational force which resists the lifting of water from a lower to a higher elevation. The third job is the overcoming of pressure which may exist in the line or vessel to which water is pumped. Total pump head is the sum of the three factors. Each of the pump's functions will be discussed in detail in this article.

1 Pump Must Overcome Friction

Since it is impossible to make an absolutely smooth interior pipe surface, flow through the pipe is resisted by frictional forces. When there is no flow, these forces do not exist. As flow increases, the frictional forces also increase. The rougher the interior surface, the higher will be the frictional forces resisting flow.

Pressure Is Resistance Factor

The frictional resistance of pipe is measured indirectly in terms of the

amount of pressure required to force water through it. For example, suppose it were required to move seven gpm through a 100 ft, straight, horizontal length of moderately clean steel pipe and discharge it out the other end to an open sewer. The job could be accomplished if the water entered the pipe under a pressure of 2 psig. A gage at the entrance would read 2 psig and a gage at the discharge end would read 0 psig, since all of the energy represented by the inlet pressure would have been used.

The pressure drop for the 100 ft length due to friction is, therefore, 2 psig. If the length were doubled, the pressure drop would also double. The pressure drop for the 100 ft length could also be expressed in terms of feet of water. Thus, the pump head necessary to do the job described is 4.62 ft of water (2×2.31).

Actual piping installations contain not only straight pipe but also elbows, tees, valves, etc. In order to simplify piping calculations, tests have been run which relate the pressure drop through these items to certain equivalent lengths of straight pipe. A 1 in. elbow, for instance, has the same pressure as 3 ft of 1 in. straight pipe. The straight run through a 1 in. tee causes the same pressure drop as 0.9 ft of straight pipe. A 1 in. globe valve restricts water flow as much as does 25 ft of straight pipe. These values and others for various pipe sizes may be found in such standard references as the ASHAE Guide.

THIS NEW SERIES, based on actual interviews with dealers, covers known problems and suggestions for improved techniques in engineering, installing and servicing of residential air conditioning systems and their components. Previous series by S. W. Reid have been published continuously since August 1952, beginning with fundamentals and continuing through the treatment of specific problems since the fundamentals series was concluded in January, 1954. Highlights of the previous discussions and a preview of things to come are listed below:

Previously covered are . . .

Methods by which heat gains can be reduced . March 1956
Modernizing a gravity system to provide year 'round air conditioning in old house Feb. 1956
Controlling humidity regain with cooling coil bypass when the condensing unit is off Jan. 1956
Sizing refrigerant lines for remote installations . Dec. 1955
Determining if the blower used for an existing warm air heating system is large enough for summer cooling Nov. 1955
Eight combinations for arranging heating and cooling equipment, the advantages and disadvantages of each Oct. 1955
Review of air flow patterns for cooling applications with recommendations for selecting and locating registers Sept. 1955

On the fire are . . .

Problems involved in converting water cooled equipment to air cooled equipment
Effect of introducing outside air into a residential air conditioning system
Effect of oversizing and undersizing cooling equipment
Important factors to weigh when installing evaporators

Measure Straight Pipe First

In determining the pressure drop or pumping head for a piping circuit, it is necessary first to measure or estimate the actual length of straight pipe. For a piping system with several parallel paths for the water to take, only the longest path or the path offering most resistance need be figured for if the pump can develop enough head for this circuit, it will have ample head for others.

To the actual length of pipe is added the equivalent length of all the elbows, tees and valves in the circuit. The sum is known as the equivalent

length of the system. Charts giving the pressure drop per 100 ft for various flow rates and pipe sizes may be found in the ASHAE Guide. Because the inside surface condition of pipe is an important factor in the pressure drop, three charts are available. One is for smooth pipe such as copper; one is for fairly rough pipe such as ordinary galvanized steel; and one is for rough pipe such as that which may have deteriorated with service.

Cost Determines Pipe Size

The choice of pipe size is largely a matter of economics. The smaller pipe will be less costly initially. This may be overbalanced, however, by the greater pumping power needed to overcome the larger frictional loss and force water through it.

In some cases a little time spent in analysis will point the way to the choice of pipe size. Consider, for example, the values given below for a job where a 3 ton cooling unit is to be connected to a cooling tower. The water quantity is 3 gpm per ton or a total of 9 gpm. The pipe is fairly rough.

Pipe size	Pressure drop, psig per 100 ft
3/4 in.	16
1	4
1 1/4	1.4

The choice between 3/4 in. and 1 in. pipe is relatively easy to make, but the choice between 1 in. and 1 1/4 in. is not quite so clear cut, since it might depend upon actual lengths involved. As a general rule, pipe selected for a pressure drop of the order of 2 to 3 psig per 100 ft of length and for a water velocity between 3 and 8 fps has been found to result in an economical installation for air conditioning work.

While sizes may be chosen with considerable latitude when the pump also is to be selected, there are sometimes other considerations which have a bearing on the matter. One such case is where the head or pressure available is limited. Water taken from a main would be one example

of this situation. From the initial pressure must be subtracted all unavoidable pressure losses in coils, etc. and any net static lift. The remaining pressure then is available for overcoming pipe line losses. The pipe must be sized so friction losses do not exceed the limited pressure assigned to that purpose. The same problem exists when the designer must work with a certain pump with its fixed head and capacity. Because pump sizes are incremental, the designer may on occasion find that he is forced to choose a pump with considerably more capacity than his preliminary calculations showed was needed. When this happens, it may be possible to effect a saving in pipe by reducing the size from that originally chosen, to utilize the pump capacity more fully.

2 Pump Must Outpull Gravity

The second job the pump must do is lift water from one elevation to another. This job has nothing to do with flow and is usually described as static head to distinguish it from friction head which we have just seen is a function of flow.

Static head is not difficult to understand, since it is the actual height through which water must be lifted. Consider a pipe 20 ft high filled with water. The pressure exerted at the bottom due to the weight of water is 8.66 psig (20 ft/2.31 ft per lb). In order for a pump attached to the bottom of the pipe to move water to the top, it must develop enough pressure or head to overcome the sum of the static head caused by the weight of water above it and the friction head developed by the desired flow.

Establish Static Head

The appearance of a piping layout is often deceiving with respect to determining the static head. To avoid confusion, first establish the level of water in the system when the pump is not running and then the highest level of water in the system when

Determine Equivalent Lengths

It will be found that equivalent lengths of valves and fittings vary with size. The procedure of determining equivalent lengths, therefore, requires a preliminary estimate of pipe size with the problem worked through on that basis. If the result is not satisfactory, a second trial with a different choice will usually be all that is required to establish the desired pressure drop.

Total frictional drop is the sum of all losses in the piping itself plus losses in heat exchange equipment such as cooling coils or condenser coils.

The latter must be obtained from the manufacturer and are usually given in his catalog for various rates of flow.

the pump is running. The difference in levels is the static head.

Static head may occur on either side of the pump; i.e., the pump may be applied so that it must lift water a certain distance through its suction line and then push it the remainder of the vertical distance through its discharge line. The distance that a pump can lift water from an open supply is limited. Theoretically, a pump drawing a perfect vacuum at the impeller would allow atmospheric pressure acting on an open tank of water below the pump to force water to a height of 34 ft in the suction line. In practice, however, there are a number of factors which substantially reduce the height to which it is possible to lift water.

One of these is the fact that pressure in the suction line must be kept well above the pressure corresponding to the temperature of the water in order to prevent vaporization. A second factor is the unavoidable friction loss due to flow through the suction line and pump. In view of these facts, it has been found practical to limit the suction lift of most centrifugal pumps to about 15 ft.

3 Pump Must Maintain Pressure at End of Line

The pump's third job consists of supplying the energy necessary to maintain a pressure at the end of the line. In an earlier example, we spoke about pumping water through a 100 ft length of pipe into an open sewer. It was shown that the initial pressure needed to overcome friction alone was 2 psig and that this was all dissipated so that the pressure at the end of the line was 0 psig. If, instead of discharging the water into an open sewer, it were discharged

into a tank at the end of the line maintained at 10 psig, the initial pressure would have to be increased by that amount making it 12 psig or 27.7 ft of water (12×2.31). A practical example of the same type of pressure head might be found in an evaporative condenser installation where it is necessary to maintain the spray header under a certain pressure in order to force water through the nozzles.

Fig. 3 is presented to illustrate the

three possible components of pump head, and the accompanying example shows briefly how they are calculated.

Locate Pump-System Balance

With an understanding of the elements that make up pump head, Fig. 4 will have more significance for it illustrates most of the fundamentals of pump application.

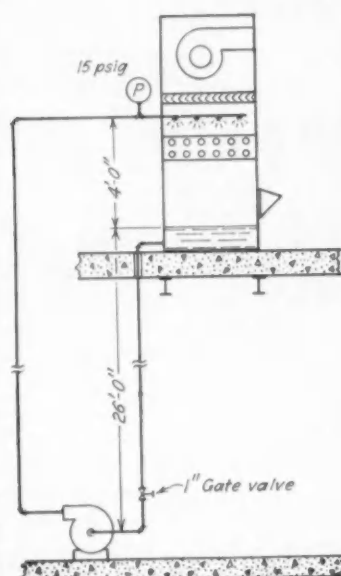
Curves *X* and *Y* are characteristic for a certain centrifugal pump running at 1750 rpm and 1150 rpm. Balanced against the pump are characteristic curves for two piping systems identified as *A* and *B*. The curve for system *A* shows that when the flow is zero, the head is zero. This tells us that the resistance consists of friction only since it is entirely a function of flow. Compare *A* with system *B*. In the latter a head of 25 ft exists even when the flow is zero. This tells us that the total resistance of system *B* is made up of at least two component parts. One part which remains constant with flow totals 25 feet and may be made up wholly of a static lift of 25 feet or wholly of a delivered pressure of 25 feet or a combination of both. The other part is the result of frictional resistance to flow (line *B*).

Curve *B'* shows what effect an increase in the frictional resistance of system *B* has on its characteristic curve. This change might occur on an actual job if the pipe line became partially clogged or if a throttling valve were partially closed. If, instead of the frictional resistance being increased, the static head or delivery pressure were increased, all points on *B* would move upward by the amount of the increase. The amount of water that would be pumped in any of the cases shown can be read at the intersections of pump curves with system curves.

Pump Must Stay Primed

In order for a centrifugal pump to deliver, its casing must be full of

EXAMPLE



PROBLEM:

Evaporative condenser installed as shown. Required water circulation 10 gpm. Pipe size is 1 in. copper tubing. Pressure at "P" must be 15 psig. Find pump head.

SOLUTION:

From ASHAE Guide find pressure drop per 100 ft for 1 in. copper at 10 gpm = 3 psig. Also find equivalent length of 1 in. ells = 3 ft and 1 in. gate valve = 0.6 ft.

3 THREE POSSIBLE components of pump head are calculated from the example given

Friction Head	Length Ft	Head Ft
Measured length of straight pipe	65	
Equivalent length 5 — 1 in. ells = 5×3	15	
Equivalent length 1 — 1 in. gate valve	0.6	
Total equivalent length	80.6	
Total friction head = $3 \times 80.6/100 \times 2.31$		5.59
Static Head		
From sketch		4.00
Pressure Head		
From sketch 15 psig $\times 2.31$		34.65
Total Pump Head		44.24

water when the pump is started. The easiest way to assure this is to install the pump below the lowest level of water entering the suction. Another is to employ a check valve in the suction line to prevent the initial prime from draining out when the pump is shut down. If neither of these methods is practical, it is necessary to provide an auxiliary water supply or to use a small hand pump. A vacuum pump is sometimes used to draw water up into a casing.

In addition to filling the pump, some thought must be given to filling the piping system. It is entirely possible to encounter a closed system where the pump is required to lift water to a considerable height only until the system is filled. Once this has been done, the pressure of the downflowing water balances the weight of the upflowing leg so that the pump is then required to furnish only the energy for overcoming the friction of flow.

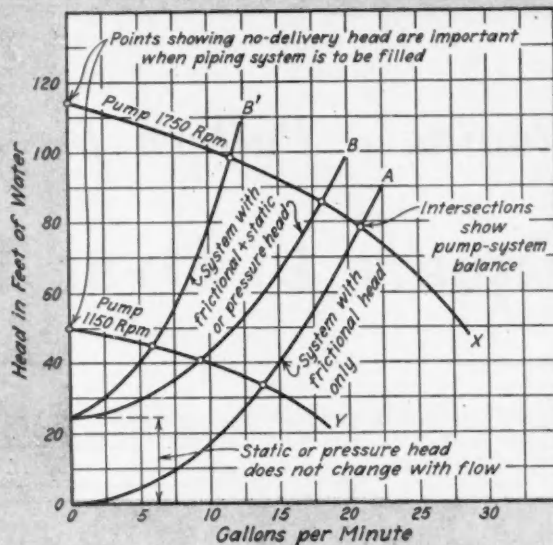
To determine whether or not a pump can fill a system, it is only necessary to determine the no-delivery head which the pump develops. This head is shown in Fig. 4 as the intersection of the pump curves with the zero flow line. If this head is more than needed to lift water to the high point in the system, a small amount of water will be delivered to fill the system gradually.

What Is 'Air Conditioning'?

The American Society of Heating and Air-Conditioning Engineers defines air conditioning as follows:

"The simultaneous control of all, or at least the first three, of the following factors affecting both the physical and chemical conditions of the atmosphere within a structure: temperature, humidity, motion, distribution, pressure, dust, bacteria, odors, toxic gases, and ionization."

Reference: Heating, Ventilating, Air Conditioning Guide 1953, page 1. Published by the American Society of Heating and Air-Conditioning Engineers, New York.



4 CENTRIFUGAL PUMP characteristic curves X and Y are balanced against piping systems A and B. Curve B' reflects increase in frictional resistance of system B

Once filled, the pump-system combination will perform normally to move the desired water quantity. If the no-delivery head is less than required to reach the system high point, some auxiliary means must be employed to fill the system.

How to Rate Efficiency

Pump efficiency is sometimes a factor that must be considered. Other considerations being equal, the most efficient pump is the best choice. Efficiency is the ratio of theoretical horsepower to brake horsepower. The former may be calculated by multi-

plying the gpm by the total pump head in feet of water and dividing by 3960. Brake horsepower is a matter of test and must be obtained from the pump manufacturer.

Modern centrifugal pumps usually have a self-limiting horsepower characteristic. This means that for a given speed the horsepower required at first rises with flow to a maximum and then decreases. With the motor sized for the maximum possible horsepower it is impossible to create an excessive overload by causing a decrease in system resistance which would in turn result in an increase in flow.

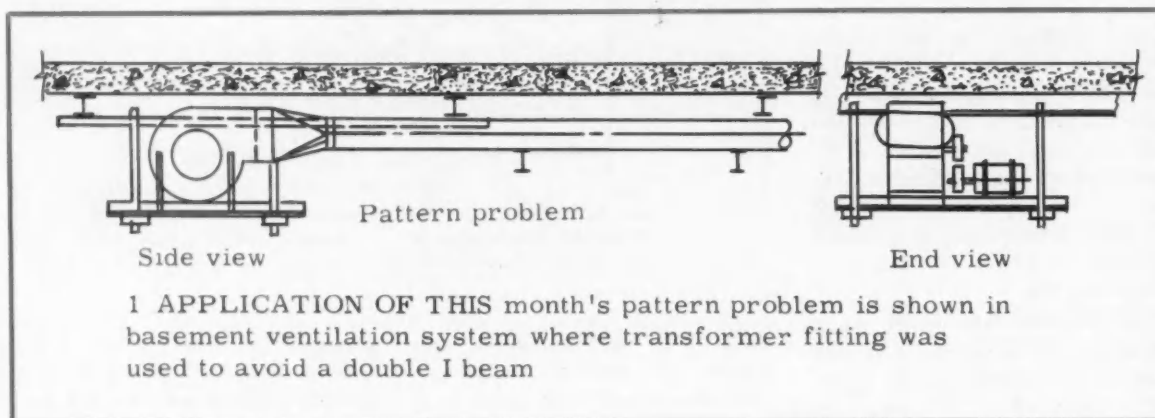
More Bedrooms, Higher Prices in '55 Homes

SIGNIFICANT increases in size and price of new one family houses were noted between 1954 and 1955, says the Department of Labor.

Three bedroom houses became much more popular in 1955, increasing to more than two-thirds of the total, as builders concentrated on moderate size houses (1000 to 1500 sq ft). Median selling prices increased 11 percent over the year — to \$13,700 — although sectional me-

dians were pronounced, varying from less than \$12,000 in the South to over \$14,000 in other regions. Price differences reflect distinct regional patterns of architecture. The proportion of new houses with basements, for example, varied from 88 percent in the Northeast to less than 20 percent in the South. Countrywide, about two out of five new homes in 1954 and '55 had basements.

Developing a Pattern for a Square to Oval Transformer



Here's how to lay out a fitting which may be called on to avoid obstructions, as in this case, of a double I beam located in line with a ventilation fan outlet

AN EXAMPLE of our pattern problem for this month is illustrated in Fig. 1 which shows a basement ventilation fan with the outlet positioned in line with a double I beam. To overcome the obstruction, the draftsman's design called for a square to oval transformer.

A study of the plan and front views (Fig. 2 and Fig. 3) shows that the fitting is symmetrical about the horizontal and vertical center lines. From this analysis, it is concluded that all the lines necessary for the pattern layout can be developed from a quarter plan view and a vertical height line equal to the transformer section, which is 2 in. as shown on Fig. 2.

In Fig. 5, the points 1 through 5 can be revolved around point Z to the right or left to intersect extended line YZ with the same true length line development result. In practical shop work it is not necessary to draw the developed lines. The experienced sheet metal layout man will plot the correct location of the points on the extended line YZ and measure the true distance between the revolved points and height point H. One should al-

ways bear in mind that a principle of good practical pattern layout is getting the most work done with the minimum of views and lines, without sacrificing accuracy in workmanship.

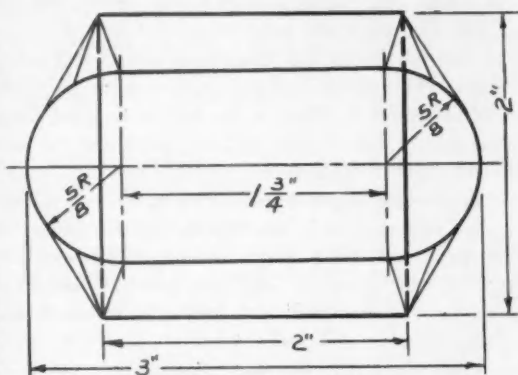
The Pattern Problem, Fig. 5 —

The following is a step by step procedure to solution of the pattern problem:

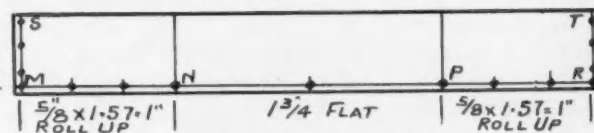
a) From the plan view (Fig. 2) transfer one quarter of the 2×2 in. square (a 1 in. square) to the simplified method drawing (Fig. 5) and mark the corners of the square with letters W, X, Y and Z as shown.

b) From point W, measure down $\frac{5}{8}$ in. and draw a line parallel to line WX. Mark the intersection point of the parallel line and line WY with the number 1. On line WX measure to the right $\frac{7}{8}$ in. and mark the point O.

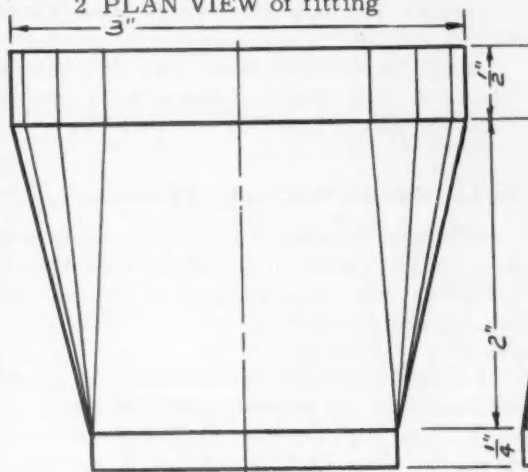
c) Extend line WX to the right of point X. With point O as center, and radius $\frac{5}{8}$ in., draw a quarter



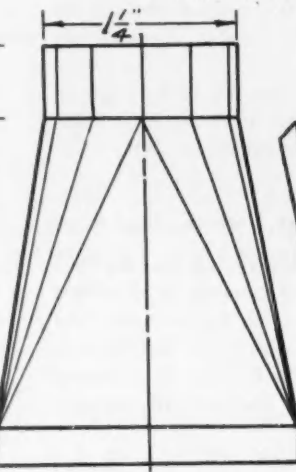
2 PLAN VIEW of fitting



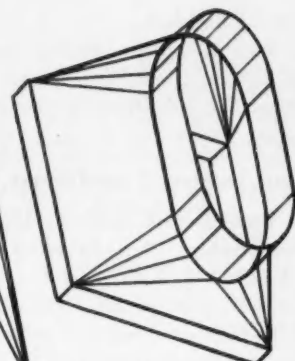
OVAL collar pattern



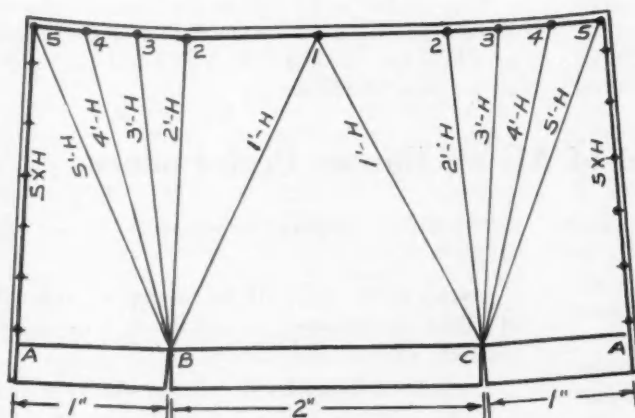
3 FRONT view and . . .



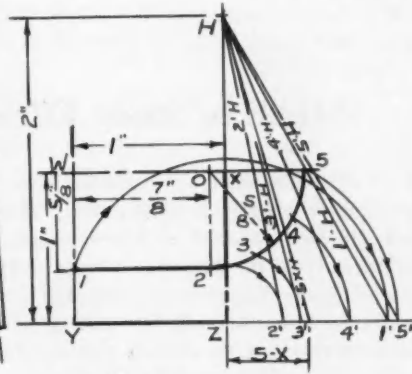
4 END VIEW of fitting



Pictorial drawing



6 HALF PATTERN of transformer fitting



5 SIMPLIFIED method drawing

circle. Divide the quarter circle into three equal spaces, and number the points 2, 3, 4, 5 as shown.

d) Extend line YZ to the right of point Z. Extend line ZX above point X. From point Z, measure up on line ZX the given vertical length of the transformer section, which is 2 in. (Fig. 4) and mark the point H.

e) With point Z as center, and radius Z-1, draw an arc from point 1 and to the right to intersect extended line YZ, and mark the point 1'. Draw the developed line 1'H.

f) With point Z as center, and radius Z2, draw an arc from point 2 and to the right to intersect extended line YZ at 2'. Draw the developed line 2'H.

g) With compass point on Z and radius Z3, draw an arc to the right to intersect extended line YZ at point 3'. Draw the developed line 3'H.

h) With Z as center, and radius Z4, draw an arc to the right to intersect extended line YZ at point 4'. Draw the developed line 4'H.

i) With Z as center, and radius Z5, draw an arc to the right and mark the intersection point of the arc and the extended line YZ with the number 5'. Draw the developed line 5'H.

j) With a compass, measure line 5X, and with point Z on extended line YZ as center, draw an arc cutting extended line YZ. Draw the developed line 5XH.

Square to Oval Transformer Pattern, Fig. 6 —

a) Draw the 2 in. horizontal line BC. On the simplified method drawing (Fig. 5) set a compass at developed line length 1'H. With point C (Fig. 6) as center, and radius 1'H, draw an arc above and to the left of point C. With 1'H as radius, and point B (Fig. 6) as center, cut the arc drawn from point C, and mark the intersection 1.

b) Set a compass at line length 2'H (Fig. 5) and with point C as center, draw an arc to the right of point 1. With B as center, and radius 2'H, draw an arc to the left of point 1. With a compass, measure distance 1-2 (Fig. 5) and with point 1 (Fig. 6) as center, draw arcs cutting arcs 2'H, and mark the points 2.

c) With a compass setting at line length 3'H (Fig. 5) as radius, and points B and C (Fig. 6) as centers,

draw arcs to the right and left of points 2. Measure arc length 2-3 (Fig. 5) and with point 2 (Fig. 6) as centers, cut the arcs 3'H, and mark the points 3.

d) With line 4'H (Fig. 5) as the radius, and points B and C (Fig. 6) as centers, draw arcs to the right and left of points 3. With arc length 3-4 on the oval (Fig. 5) as radius, and points 3 (Fig. 6) as centers, cut the arcs 4'H, and mark the points 4.

e) With line length 5'H (Fig. 5) as radius, and points B and C (Fig. 6) as centers, draw arcs to the right and left of points 4. Measure arc 4-5 on the oval (Fig. 5) and with points 4 (Fig. 6) as centers, cut the arcs 5'H, and mark the points 5.

f) Measure developed line 5XH (Fig. 5) with a compass, and with points 5 (Fig. 6) as centers, draw arcs to the right and left of points B and C. Measure line length ZX which is 1 in., and with points B and C as centers, cut the arcs 5XH and mark the points A and A. Draw the lines AB and CA.

g) From lines AB, BC and CA, measure down $\frac{1}{4}$ in. and draw lines parallel to and equal in length to lines AB, BC and CA.

Through the developed points, draw the pattern outline and the work lines. Add allowances for seams and joints and mark the patterns for fabrication.

To Lay Out the Oval Collar Pattern —

a) Calculate the circumference of the oval by adding the given end radii, multiplying this amount by 3.14 and adding twice the given length of the flat section, thus ($\frac{5}{8}$ plus $\frac{5}{8}$ equals $1\frac{1}{4}$ or 1.25); (1.25×3.14) plus ($1\frac{3}{4} \times 2$) equals $7\frac{1}{2}$ in.

b) Draw a horizontal line, establish the point M, and from this point measure to the right lengths 1 in., $1\frac{3}{4}$ in., 1 in. Mark the points M, N, P and R. Through these points draw lines perpendicular to line MR. On lines MR measure up the given length of the collar as shown on Fig. 3, which is $\frac{1}{2}$ in., and mark the points S and T. Draw the line ST.

Note: A half collar pattern has been developed to conserve space. Note also that drawings on the preceding page have been reduced $\frac{1}{10}$ from actual measurements for purposes of reproduction.

ASHAE to Study Effect of AC on Human Performance

THE EFFECT of air conditioning on human performance in industry where comfort conditions can't always be maintained will be scrutinized in a new project at the research laboratory of the American Society of Heating and Air-Conditioning Engineers in Cleveland.

Laboratory investigations will be undertaken of human subjects at various rates of work activity to investigate the effect of humidity on the required temperatures for comfort. Tests will be conducted first in the indoor comfort range and then at both higher and lower temperatures and humidities. The project will be conducted

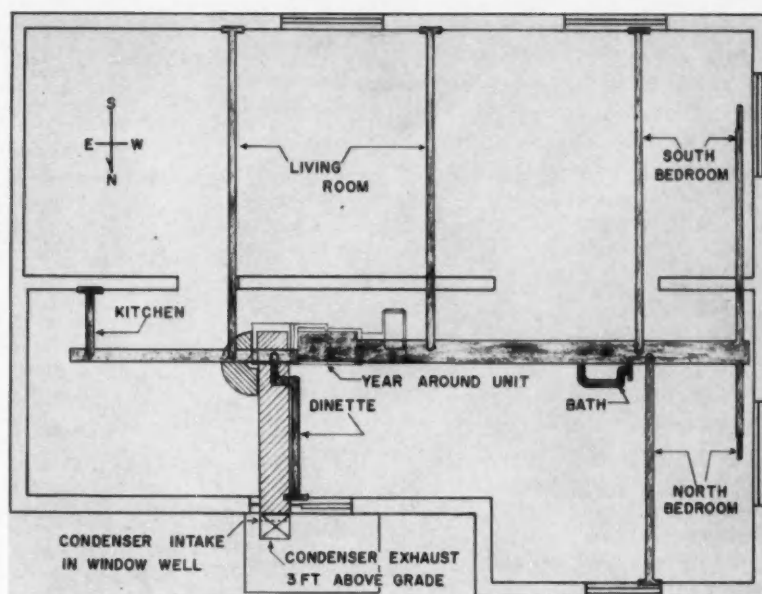
by Nathaniel Glickman, University of Illinois physiologist.

Another factor which will be investigated is the effect of human heat radiation on wall temperatures and consequently on room temperatures.

A common but complex situation in which one or two walls are relatively cold and the ceiling or other walls are higher in temperature than that of the air will be examined in the laboratory to provide more complete design data than is now available.

Here's Latest On Air Conditioning Research

... on small pipe cooling and year 'round air conditioning systems and on pressure losses in warm air perimeter fittings and outlets for the 1954-55 heating-cooling season, from the University of Illinois Research Residence 2 in behalf of the National Warm Air Heating and Air Conditioning Association



1 SMALL PIPE research in Residence 2 was made in this system. Basement plan shows system layout and air cooled condenser in the duct work

By D. R. Bahnfleth and J. R. Wright
University of Illinois

1 Small Pipe Cooling Study Extended

THE INVESTIGATION of the small pipe cooling system in Research Residence 2 during the summer of 1955 was an extension of the study of a year 'round system begun in the summer of 1954 and continued in the heating season of 1954-55.

There were three objectives to this study: 1) to determine if a system balanced for satisfactory heating would provide satisfactory cooling balance; 2) to compare the cost of operation of an air cooled condensing unit with that of a water cooled condensing unit; 3) to determine the effect of night air cooling on the cost of operation and the comfort conditions.

Residence Is 'Average' Home

Research Residence 2 is a one story frame structure. It has cedar shingles on the exterior, and the interior

walls are finished with hardwood veneer plywood paneling. The walls and ceiling of the Residence are fully insulated. The attic is open and vented and has louvers in the gable ends and continuous openings underneath the eaves on the north and south. The south exposure of the residence is shaded by a 3 ft, 10 in. roof overhang, and canvas awnings shade the windows on the east and west. A floor plan of the structure, which has a floor area of approximately 1040 sq ft, is shown in Fig. 1. Approximately one-quarter of the exposed wall area is glass.

During the 1955 cooling season the Residence was occupied by a family of two adults. The cooling load, calculated from the third edition of Manual 11, was 22,400 Btuh for an indoor design temperature of 75 F and outdoor design conditions of 95 F dry bulb temperature and a medium daily temperature range.

Two Trunk Ducts Used

The duct system consisted of two uniformly sized trunk ducts, or extended plenums, extending to the east and the west from the year 'round air conditioning unit. Four inch diameter branch ducts extended from the plenum to the register boots. Except in the kitchen, $2\frac{1}{4} \times 14$ in. floor diffusers were located underneath the windows at the outside walls.

The year 'round air conditioner consisted of a 70,000 Btuh input gas fired highboy furnace and a 2 hp mechanical cooling unit. The first cooling unit used in these studies had a water cooled condenser, and no water conserving devices were used. The rated capacity was 24,100 Btuh with an air flow rate of 560 cfm. The other cooling unit had air cooled condensing, and the cooling air was passed through insulated ducts from a window well and exhausted outdoors. The rated capacity was 22,500 Btuh with 800 cfm, and the average measured capacity ranged from 20,500 Btuh at 72 F mean daily temperature to 16,500 Btuh at 85 F mean daily temperature with an air flow rate of 560 cfm.

Four Series Conducted

In these studies only the living quarters were conditioned. The basement was not included in the air distribution system. The thermostat, located in the hall, was set to maintain a temperature of 75 F. No attempt was made to control or limit the activities of the occupants, but records of such activities as oven operation, door openings, and washing machine operations were made.

Four series of studies were conducted. The blower was operated continuously in all series except the night air cooling in test number S 55-4. The first series, test S 55-1, was conducted with the system balanced for satisfactory heating with the kitchen register closed. For the remainder of the studies the kitchen register was opened. The first two series of tests, S 55-1 and S 55-2, were conducted with the water cooled unit, and the latter two, S-55-3 and S55-4, with the air cooled units.

In addition, during the last series the windows and doors were opened and the blower and compressor turned off when the outdoor temperature dropped below 75 F,

provided this drop occurred before 9 p.m. No mechanical ventilation was used in this study.

Results Are Conclusive

The balance, as measured by the difference in air temperatures between the warmest and coolest rooms at the 30 in. level at 3 p.m. with the unit operating, was slightly improved by opening the kitchen register valve. The average maximum room-to-room temperature difference was about 4 F in test S 55-1. During the off cycle of the compressor the room-to-room temperature difference approached zero.

As was found in previous investigations, the number of hours of compressor operation was a function of the mean daily temperature (MDT), which is the average of the maximum and minimum outdoor temperature during the 24 hr period.

The electrical energy required by the water cooled unit ranged from 88 percent at 72 F MDT to 80 percent at 84 F MDT of the energy required by the air cooled unit. The water cooled unit required approximately 126 gph; this water was discharged to the sewer. It was found that the cost of operation, based on an electric rate of $2\frac{3}{4}$ ¢ per kwh, was less for air-cooled operation than for water cooled operation where water rates are above 10¢ per 1000 gal.

Opening the windows and doors when the outdoor temperature dropped below 75 F was found to be an effective way of reducing operating costs. The reduction was as much as one third the cost of air cooled operation without night air cooling at 80 F MDT, and an even greater reduction resulted at lower mean daily temperatures. Above 80 F MDT, night air cooling was not effective because the outdoor temperatures usually did not drop below 75 F before bedtime. The room conditions were comfortable during the period when the windows were open, except for one notable exception. On nights when the outdoor temperature dropped only barely below the control point, the high relative humidity accompanied by a dry bulb temperature of near 75 F caused discomfort. This condition could be corrected by not opening the windows and doors until the outdoor temperature dropped to 70 F.

2 Rebalance Year 'Round System for Heating?

THE 1954-55 HEATING investigation conducted in Research Residence 2 was a continuation of the studies begun during the summer 1954 of the performance of a small pipe year 'round air conditioning system. The performance of this system during the 1954 cooling season was discussed at the 1954 convention of the National Warm Air Heating and Air Conditioning Association.

One objective was to determine whether a duct system which had been balanced for satisfactory cooling would also provide satisfactory heating temperature balance. This objective was extended to determine to what extent

the system had to be readjusted to obtain satisfactory heating balance. Another objective of these studies was to determine what effect using the cooling air flow rate would have on the comfort conditions in the Residence and also on the performance of the furnace and blower. In other words, when the cooling air flow rate was used for heating in Research Residence 2 the system was no longer set for continuous air circulation, and the studies were made to determine what effect this would have on the variation in room air temperatures.

(Continued on page 103)

what they're doing with
REVERE SHEET COPPER



**Water stop expansion joints
on many bridges of
N. Y. STATE THRUWAY
are made of
20 OZ. REVERE SHEET COPPER**

Ordinarily, when you drive over a bridge you don't think of expansion joints. But their function is as important as the concrete reinforcing rods or other members from which bridges are constructed. That's why copper was selected. It does not rust, rot or deteriorate, concrete does not bother it. Copper readily expands and contracts with temperature changes. It flexes to take every movement of the concrete slabs and the stress and strains year after year without breaking down, is readily worked into any desired shape and a cinch to join by soldering or brazing. Construction engineers and sheet metal men tell us, in a spec. there is no "or equal" for copper.

REVERE COPPER AND BRASS INCORPORATED

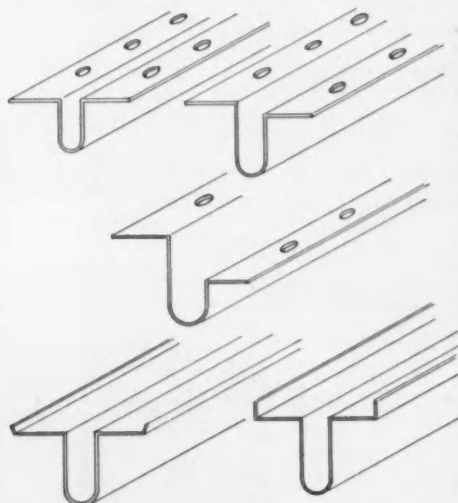
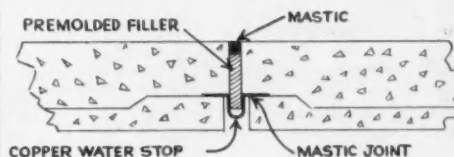
Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Newport, Ark.; Rome, N. Y. Sales Offices in Principal Cities, Distributors Everywhere.



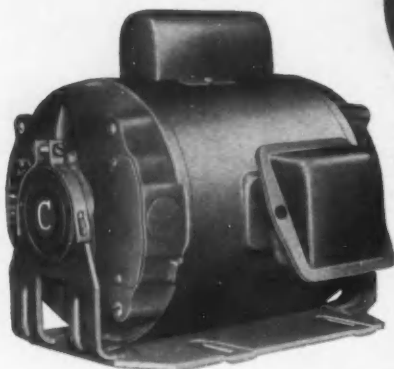
INSET PHOTO ABOVE shows one of the many types of water stop expansion joints used on the N. Y. State Thruway and made of 20 oz. Revere Sheet Copper. 8 ft. lengths were presoldered into 24 ft. lengths before placing in joint, keeping the installation quick and simple. Detail is shown directly below with a few of the many types of joints used.



Your choice of normal or low starting current... with Performance-Rated



HIGH TORQUE, SINGLE-PHASE MOTORS



Capacitor Motors... $\frac{1}{8}$ to 20 H.P. provide high starting torque, high pull-up torque and require normal starting current. They are available in drip proof, dust proof and explosion proof enclosures.

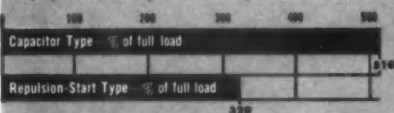
Even if you have severe starting current limitations, you can select the torque you need for sure starts and smooth pull-up to speed from the Century Performance-Rated Single-Phase line (see bar chart below for operating characteristics of two types of Century Single-Phase Motors).

Whatever Your Motor Job... there's a Century Motor Performance-Rated to handle it with top effectiveness. Contact your nearby Century branch office or Authorized Distributor.

TYPICAL OPERATING CHARACTERISTICS

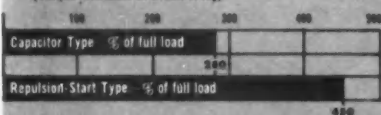
STARTING CURRENT

(Important on Heavily Loaded Circuits)



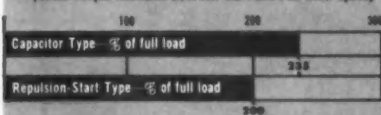
STARTING TORQUE

(Torque Available at Break-Away)



PULL-UP TORQUE

(Least Torque Available Between Start and Full Load Speed)



Repulsion Start, Induction Motors (type RS)... $\frac{1}{2}$ to $7\frac{1}{2}$ H.P. provide very high starting torque, yet require unusually low starting current. They are available in drip proof and splash proof enclosures.

Performance-Rated
Motors
 $\frac{1}{8}$ to 400 H. P.



CENTURY ELECTRIC COMPANY

CE-32

1806 Pine Street, St. Louis 3, Missouri • Offices and Stock Points in Principal Cities



Model 590 — Residential Air Conditioner

GROW BIGGER WITH

bryant

and here's one way you can

GROW BIGGER WITH

bryant



THE GREATEST PROFIT BUILDING
PROGRAM EVER OFFERED—THE NEW

bryant

**Dealer
Development
Program**

**To help you sell MORE heating
and air-conditioning equipment
... profitably**

Bryant now offers you a Dealer Development Program that *will* help you sell more . . . more profitably! There are seven steps in the complete program. Each is designed to assist you in one phase of your business. This is a practical, down-to-earth program prepared from years of experience in helping heating and air-conditioning dealers conduct a better, more profitable business. You have to see the details to fully appreciate its many benefits. But just to give you an idea of the scope of the program...



First time a program like this has ever been offered to the heating and air-conditioning dealer. It is completely explained in this beautiful 64-page book. Ask your Bryant Distributor for a copy and other details. Act today!

.....HERE ARE A FEW OF THE TOOLS.....

**CHART TALKS THAT
REALLY SELL**

... in full color. Charts are in a handsome, flip-over binder, with plastic envelopes to hold the pages. Permits keeping story up to date as well as the insertion of local material.



**SURVEY AND ESTIMATE
FORMS**

... a complete set for your use with your customers. There is a detailed form for each type of equipment called for by the job. Makes estimating simple and accurate and easy for your customers to understand.



**BRYANT'S EXCLUSIVE
F. O. B. HANDBOOK**

... this handy, pocket-size booklet lists all features of each individual piece of equipment, together with corresponding owner benefits. Makes selling easy. A terrific sales tool.



DEALER'S GUIDES

... the most complete guides to estimating the heating and cooling requirements of a home. Make it possible to make complete engineering layouts and calculations in less than an hour's time. No other guides just like these.



AND THERE'S LOTS MORE. FOR THE COMPLETE STORY—AND HOW YOU CAN TAKE FULL ADVANTAGE OF THIS COMPLETE PROFIT-PRODUCING PROGRAM—CALL YOUR BRYANT DISTRIBUTOR TODAY.

and here are 8 MORE reasons why you'll GROW BIGGER WITH BRYANT

1. Your customers know and trust the name Bryant . . . famous for 47 years as the leading name in home comfort. That's why a Bryant is easier to sell.
2. From small home to mansion, or for store or factory, there's a Bryant to fit the budget and the need in gas or oil furnaces, boilers, air conditioners, space heaters, unit heaters, water heaters.
3. You build customer confidence when you install Bryant . . . the highest quality heating, cooling and water heating equipment made.
4. You profit more with Bryant because of the Bryant

Business Development Program, the most complete program in the industry.

5. You get *sales building tools* that increase your sales and profits.
6. You have the help of a nearby Bryant distributor who gives you *complete engineering, sales and service help*.
7. You are backed up by *powerful national advertising* designed to help you.
8. You are given the most complete *co-op advertising* to build sales in your own community offered by any manufacturer in the industry.

Don't miss this tremendous opportunity to build your profits through the BRYANT OPERATION PROFIT and the Bryant Dealer Development Program. If you want to make more sales, more profits, it will pay you to get the full details. So call your Bryant Distributor today, or write, Bryant, 48 Monument Circle, Indianapolis 4, Indiana.



be Mr. B
in your community

and GROW BIGGER with

bryant



Rebalance Year 'Round System for Heating

(Continued from page 98)

To satisfy the objectives of the investigation, four series of studies were conducted. In the first series, the balance setting of the system was the same as it had been during the summer of 1954 and the air flow was set at the same rate used during the cooling studies. In the second series, the balance was changed by closing the valve in the kitchen diffuser, and since the blower speed was not changed, the resulting air flow rate was reduced in the third series of studies to obtain a 100 F temperature rise through the furnace, but the balance adjustment was the same as that used in the second test series. In the fourth series, the duct volume dampers were adjusted to obtain a good heating balance with the kitchen diffuser valve closed and with the air flow rate set for a 100 F temperature rise. The thermostat was set to maintain a temperature of approximately 72 F at the 30 in. level in the house. The fan switch settings were: cut on, 100 F; cut off, 80 F in all four series. The house was furnished and occupied during the investigation.

It was found that the temperature balance maintained during the first study with the system balanced for cooling was not satisfactory since on most of the days the extreme difference in temperatures between rooms was between 4 and 5 F. In severe weather the maximum temperature difference between rooms at the 30 in. level was as large as 6 F. The coarse balance adjustment obtained by closing the kitchen diffuser valve reduced the maximum temperature differences between rooms by about 1.5 F, and the temperature difference between rooms was then between 2.5 and 3.5 F. Further improvement in balance was observed when the air flow rate was adjusted for a 100 F rise through the furnace with the kitchen diffuser valve closed, and in this test series the maximum temperature difference between rooms was between 2 and 2.5 F. When the system was rebalanced for heating, this temperature difference was reduced to 1.5 to 2 F, which was similar to that experienced with previous small pipe

heating systems. Thus, the results indicated that some rebalancing of a year 'round system may be necessary when changing from heating to cooling, and also that the closing of diffuser valves in the outlets required for cooling but not for heating would be effective in improving the comfort provided by the heating system.

A comparison of the floor to ceiling level temperature variations observed in each of the studies showed that using the cooling air flow rate instead of that required for continuous air circulation did not appreciably change the temperature variations. For instance, the average floor to ceiling level temperature differential at an outdoor temperature of 0 F was 3.2 F when the system air flow rate was 530 cfm and 3.9 F when the system air flow rate was 300 cfm. When the outdoor temperature was about 40 F, the average floor to ceiling temperature differences were 1.5 and 2 F for air flow rates of 530 and 300 cfm, respectively.

Air Flow Rates Varied

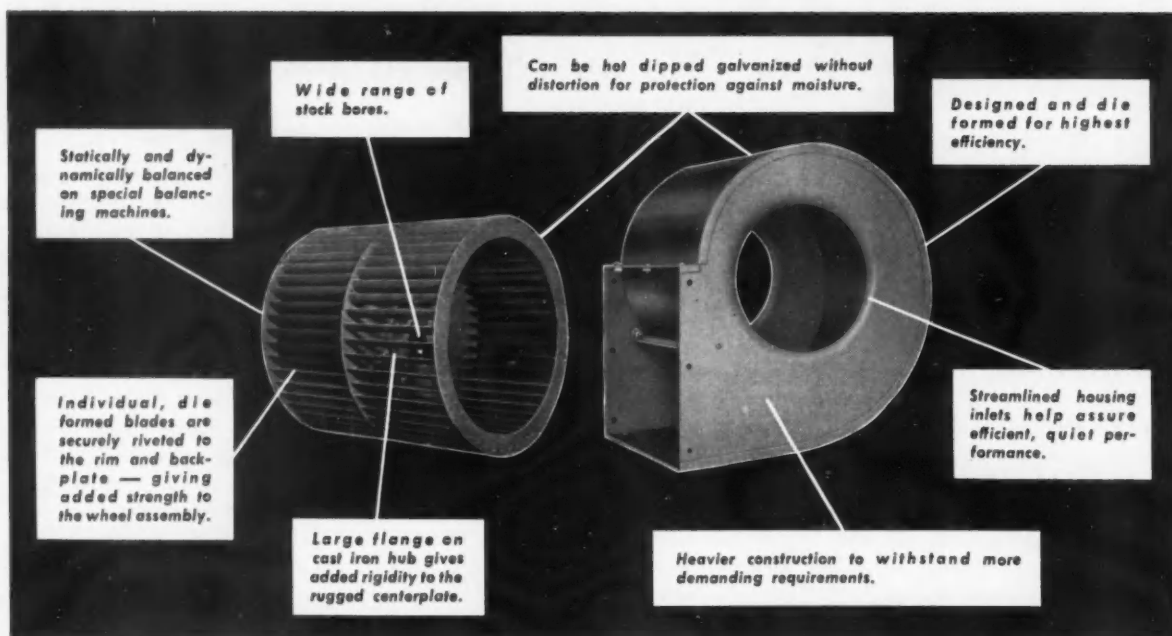
Using the higher air flow rate and consequently lower air temperature rises through the furnace in the first two studies did have an effect on the performance of the blower. In both cases, continuous operation of the blower did not occur until the outdoor temperature was below about 15 F, and a large number of blower operations occurred during the day and early evening on days when the outdoor temperature was about 30 F. On the other hand, when the system was adjusted for continuous air circulation, the blower operated continuously when the outdoor temperature was 30 F. The intermittent operation of the blower during the studies with the higher air flow rates resulted in larger cyclic variations of room air temperature during the day. The cyclic variation of room air temperature was not affected by air flow rate when the blower operated continuously.

3 Pressure Losses Checked in Perimeter Fittings

A PRELIMINARY REPORT OF the findings in the first phase of the study concerning pressure losses in PH-4 type boots and floor diffusers when used with 4 and 5 in. diameter ducts was presented at the 1954 NWAHACA convention. Since that time the studies of pressure losses in floor diffuser combinations have been completed, and studies of pressure losses in low side wall and baseboard outlets have been started. In the latter studies, the tests on boot-stackhead low side wall outlet combinations for installations where the ducts are located in the joist space have been completed for 4 in. diameter duct. Similar tests have been completed for 5 in. diameter duct with a 31/4 in. deep stackhead. These studies will be continued to include other sizes and types of outlets.

The air for the test apparatus was drawn through calibrated orifices, located in an orifice box, by a centrifugal fan. The fan delivered air into a plenum chamber which contained a baffle and straighteners so the air flow pattern entering the duct test section was uniform. The air then flowed through a transition section and into the duct test section. This test arrangement was used to measure pressure losses in PH-4 boots and floor diffuser combinations. The apparatus shown in Fig. 2 was added to the end of the straight section of duct to measure the pressure losses in the boot-stackhead low side wall diffuser combinations. The table in Fig. 2 shows the combinations of duct, stackhead and low side wall outlet sizes studied.

(Continued on page 106)



HIGH PRESSURE REQUIREMENTS?

Clarage has what it takes!

... for pressures up to 8" with modifications from standard construction! Clarage Type DF equipment — Wheels and Housings or Complete Fans — is equipment to investigate for your Air Conditioning Units, Cooling Towers, Evaporative Condensers, etc.

Don't short-change the products you make by incorporating anything less than Clarage quality — *known* quality that has *proved* its worth to other leading manufacturers.

Check on the increased saleability you, too, will experience with dependable Clarage Type DF fan equipment. CLARAGE FAN COMPANY, Kalamazoo, Michigan.



Complete Type DF fans are available in 11 sizes with capacities ranging from 200 to 10,000 CFM. Special units for higher pressures and more severe services can also be furnished.

CLARAGE

...dependable equipment for
making air your servant

SALES ENGINEERING OFFICES IN ALL PRINCIPAL CITIES • IN CANADA: Canada Fans, Ltd., 4285 Richelieu St., Montreal

WINKLER shows you how to become an **EXPERT IN AIR CONDITIONING!**



If you are passing up summer cooling or all-year air conditioning jobs because you haven't the "know-how," here's the quick and sure way to get in on today's big profit opportunity! In an incredibly short time, Winkler trains you to become an air conditioning expert.

As a Winkler Franchised Dealer you are entitled to receive — *without charge* — an intensive course of instruction at the Winkler Training Institute. You don't have to be an engineer—this is a course for practical men. You'll leave the school fully equipped to do a competent job of installing Winkler heating and cooling systems in residential and commercial buildings.



WINKLER
TRAINING
INSTITUTE

**EVERYTHING TO SELL—A COMPLETE
LINE OF HOME COMFORT EQUIPMENT!**

Your Winkler training can be put to immediate and profitable use. Winkler equipment meets every heating and cooling requirement for new homes or modernizing installations...you never need miss a sale because of a "short" line. And your Winkler District Sales Manager is always available to help on sales and installation problems.

Write today for complete information.



Basement and Vertical
All-Year Conditioners

Blower and
Cooling Coil Units

Free-standing Cooling units

Steel and
cast iron boilers

Oil Burners

Gas Burners



WINKLER

WRITE TODAY FOR DIRECT FACTORY FRANCHISE DETAILS

STEWART-WARNER CORPORATION

U. S. MACHINE DIVISION • Dept. A-46 • LEBANON, IND.



Study Pressure Losses in Perimeter Fittings

(Continued from page 103)

Since the earlier report contained pressure loss information on PH-4 boots and floor diffusers only when used in conjunction with 4 and 5 in. diameter duct, a summary of the results of the completed study is given. The studies indicated that the pressure loss of floor diffusers depend largely on the free area of the diffuser; and that for a given duct size, a minimum pressure loss was obtained with a particular size diffuser. Thus, a higher pressure loss resulted when the size of the diffuser was either less or greater than the size of the optimum diffuser. However, the results also showed that approximately the same pressure loss was obtained for a relatively wide range of outlet sizes when used with a given duct size.

Table 1 shows the duct and outlet size combinations which have a pressure loss equal to 1.6 times the velocity pressure in the boot collar. This pressure loss is equal to the average pressure loss of the many outlets studied. For any given duct diameter, outlets of the sizes indicated by the letter X will have approximately the same pressure loss. Thus, in the case of 4 in. diameter duct, the pressure loss of a $2\frac{1}{4} \times 10$ in. floor diffuser will be about the same as that of a 6×10 in. floor diffuser.

TABLE 1—ROUND DUCT and floor diffuser size combinations were tested to establish minimum pressure loss

Outlet Size, in.	Round Duct Size, in.				
	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
$2\frac{1}{4} \times 10$	X	X			
$2\frac{1}{4} \times 12$	X	X			
$2\frac{1}{4} \times 14$	X	X			
4×10	X	X	X	X	
4×12	X	X	X	X	
4×14		X	X	X	X
6×10		X	X	X	X
6×12			X	X	X
6×14				X	X

TABLE 2—RESISTANCE OF BOOT-FLOOR diffuser combinations are taken from table 1 at airflow rate of 90 cfm

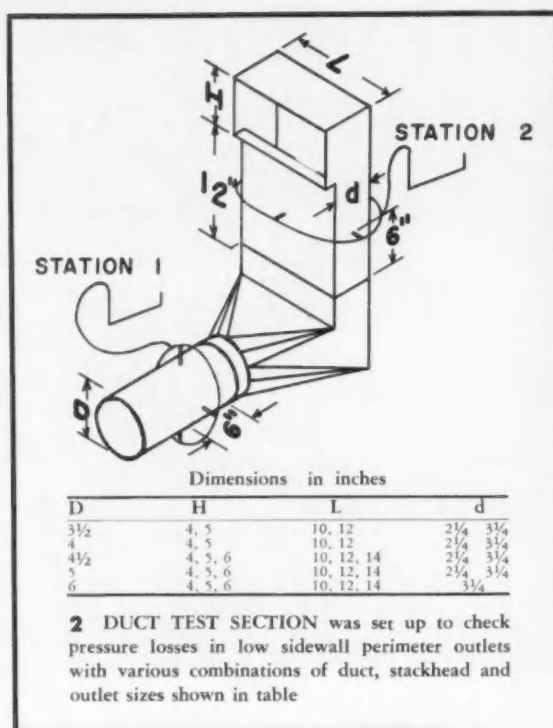
Round Duct Size, in.	Friction Loss in 100 ft*, in. H ₂ O	Total Pressure Loss for Boot-outlet Combination, in. H ₂ O	Eq. Length, ft of Approach Duct	$EL \frac{1}{2} \times 12$	$D \frac{1}{2}$
$3\frac{1}{2}$	1.010	0.1810	17.9	61.5	
4	0.515	0.1060	20.6	61.8	
$4\frac{1}{2}$	0.293	0.0656	22.4	59.7	
5	0.176	0.0434	24.7	59.3	
6	0.075	0.0210	28.8	57.5	

*ASHAE Guide, 1955

†EL = equivalent length in feet

‡D = diameter of round duct in inches

The resistance of boot-outlet combinations which are given in Table 1 have been shown in Table 2 for an air flow rate of 90 cfm, the average air flow rate used in the study. The resistance has been expressed in terms of total pressure in inches of water, equivalent length of approach duct in feet, and equivalent length of approach duct in terms of the number of diameters of the duct. The table shows that the pressure loss, when expressed in terms of diameters of approach pipe, reduces to 60 diameters. In other words, the equivalent length in feet of any combi-



nation of duct and outlet size within the limits of Table 1 is equal to 60 times the diameter of the duct in feet, or 5 times the diameter of the duct in inches.

General Observations Made

There are some general observations which may be made at this time from a study of the data available. In the range of outlet sizes studied with the 4 in. diameter duct, the depth of the stack seems to have little effect on the total pressure loss of the combination. That is, it may be possible to use $2\frac{1}{4}$ in. instead of $3\frac{1}{4}$ in. deep stacks, without any appreciable increase in pressure loss, thus making available extra space for insulation. This has been observed with the 4 in. diameter duct; subsequent studies will determine whether similar losses will result for the two stack depths with other duct sizes.

Whereas an optimum size floor diffuser, which resulted in a minimum pressure loss, was found for each duct size, the pressure loss of the low sidewall combinations appears to decrease as the size of the outlet is increased. Thus, the pressure loss of a 4×14 in. low sidewall diffuser on 4 in. diameter duct will have a lower pressure loss than a 4×10 in. outlet when used with the same size duct. Hence, it does not seem at this time that it will be possible to select a range of low sidewall diffuser sizes for minimum pressure loss as was done for the floor diffusers in Table 1. It appears the pressure loss for each combination may have to be determined individually.

You couldn't tell furnaces apart without nameplates?



DON'T INCLUDE *Sequoia* GAS FURNACES IN THAT!

Maybe I'm not an engineer, but I've installed enough furnaces to know quality when I see it. On Sequoia's, it's a lot of the little things that add up—take their Closeteer furnace right here:

- THIS CASE, FOR INSTANCE (THEY USE HEAVY 20 GAUGE STEEL, ENAMEL IT BEAUTIFULLY, AND ROUND OFF THE CORNERS.)
- THEIR CONTROLS, TOO (RIGHT AGAIN. MINNEAPOLIS-HONEYWELL ARE STANDARD EQUIPMENT, AND ALSO THE NEW ROUND THERMOSTATS.)
- AND THE PARTS INSIDE (WE THINK IT'S IMPORTANT TO USE THE BEST AVAILABLE... DELCO, G. E., DUSTOP...)

I don't know how much more they cost, but I do know this: we almost never have service call-backs on Sequoia jobs. That's where quality separates 'em!

Actually, Mr. Heating Dealer, Sequoia gas furnaces are nationally available at competitive prices. Consistent quality—consistent costs. You always know where you stand when you do business with Sequoia.

YOU ARE INVITED TO WRITE FOR DETAILS ON THE COMPLETE SEQUOIA GAS FURNACE LINE TODAY



**ANOTHER
KEY SEQUOIA DEALER**

**SOMMERVILLE HEATING & AIR
CONDITIONING CO.**
of Downey, California



NED SOMMERVILLE was among the first to forecast Los Angeles' tremendous residential development to the Southeast. Accuracy of his predictions, and the quality of his preparations, is reflected in Somerville Heating & Air Conditioning business statistics for recent years—more than 1,500 new installations annually! Sequoia's record with this major heating dealer of the Greater Los Angeles area can be summed up briefly: the primary supply source—originally, and continuously over the years.

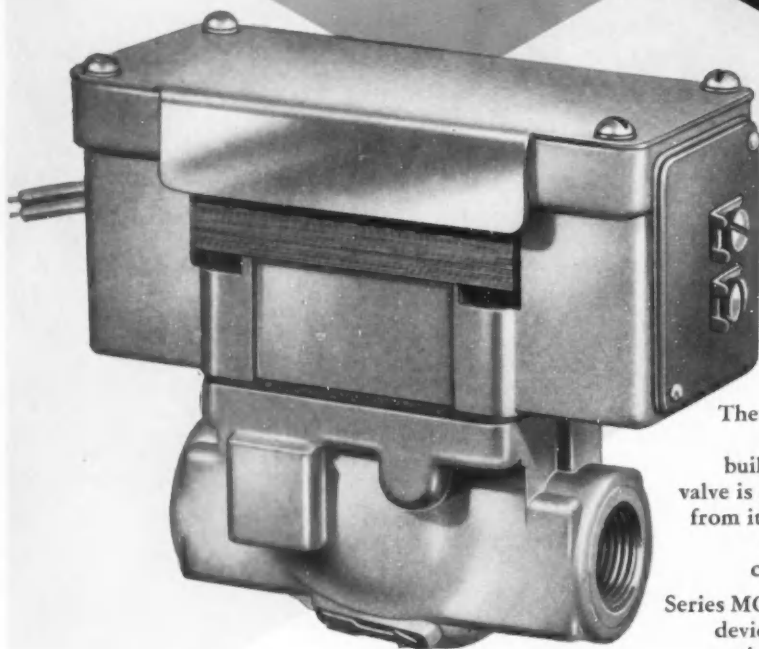
Sequoia MANUFACTURING CO.

1000 BRITTAN AVENUE • SAN CARLOS, CALIFORNIA

Manufacturers of Upright, Reverse-Flow and Horizontal Gas Furnaces and Air Conditioners

FOUR NEW ACTROL[®] VALVES

provide positive,
quiet, efficient control
for your **GAS**
appliances



The Actrol family of valves is designed for the gas appliance that needs a reliable, automatic main gas control valve—efficient, strong in opening and closing pressures, and simple to install and service. This proven line is now augmented by four new Series MC models, each available with 1/2" female pipe threads inlet and outlet.

The valve mechanism of all is actuated by a rotor turning in the magnetic field of a built-in transformer. Opening force of the valve is greatest when the valve must be started from its seat against gas pressure. All models operate on 115 volt, 60 cycle, a.c., line current with a 24-volt secondary circuit.

Series MCR has a manual set, automatic recycling device to hold valve open during periods of electric power failure; manual set releases when normal electric service is restored.

Series MCS includes a Baso[®] switch automatic pilot wired in series with the primary coil of the transformer and deriving energy from a thermocouple. It provides safe lighting.

Series MCV incorporates Baso valve and automatic pilot in one casting to provide safe lighting and complete shut off. Valve has two 1/8" F.P.T. pilot tappings, one on each side.

CAPACITY: BTU./HR. AT 1" PRESSURE DROP

ACTROL Series	Natural Gas	Mfd. Gas
MC	170,200	115,000
MCR	170,200	115,000
MCS	170,200	115,000
MCV	148,100	100,100

Investigate these compact Actrol valves and note the many positive product and sales advantages they have for your line of gas appliances.

MILWAUKEE GAS SPECIALTY CO.

Dept. AA-10

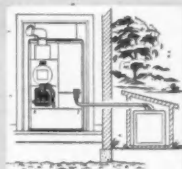
MILWAUKEE 1 • WISCONSIN



3 Ton Upflow Unit. Air or Water Cooled. Burns Gas or Oil. 112,000 Btu at Bonnet.



3 Ton Counterflow Unit. Air Cooled Only. Burns Gas or Oil. 112,000 Btu at Bonnet.

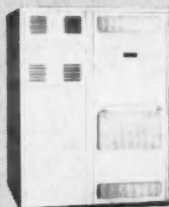


Copper Refrigerant Tubing Connects Air Cooled Condensing Unit to Cooling Coil in furnace Cabinet.

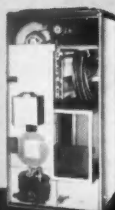
Water Cooled Refrigerant Circuit is installed within the cabinet. With Air Cooled Circuit, only the cooling coil is so installed.



2 Ton Upflow Unit. Air or Water Cooled. Burns Gas or Oil. 84,000 Btu at Bonnet.



5 Ton Upflow Unit. Water Cooled only. Burns Gas or Oil. 140,000 or 112,000 Btu at Bonnet.



2 Ton Counter Flow Unit. Air or Water Cooled. Burns Gas or Oil. 84,000 Btu at Bonnet.

● Reach out and grasp it. It's yours for the taking: Abundant, extra profit from year 'round Air Conditioning installations.

With Moncrief this is not just a promise. Moncrief is ready now, with a complete line of Year 'Round Air Conditioning Units.

More than an "add-on" application, the Moncrief Year 'Round Air Conditioner is a complete unit that supplies both heated and cooled air from the same, superbly designed and constructed cabinet unit. This single, combination unit requires less floor space than many ordinary furnaces, saves you installation time and money.

Installs as Heating Unit Only

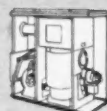
Installed without a cooling unit, the Moncrief Year 'Round Air Conditioner is an unsurpassed forced warm air heating unit that burns either Gas or Oil with equal efficiency.

Add Cooling Circuit Later

When your customer is ready for cooling, his Moncrief is also ready. Either the Air Cooled or Water Cooled Refrigerant Circuit can be installed at any time, conveniently and without expensive alteration of ductwork.

For the complete line of Year 'Round Air Conditioning Units that is ready now, see your Moncrief Wholesaler, now.

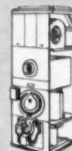
Everything for Heating and Cooling



Basement Type Winter Air Conditioners Burn Gas or Oil



Utility Type Winter Air Conditioners Burn Gas or Oil



Counterflow Winter Air Conditioners Burn Gas or Oil



Horizontal Furnaces: 4 Oil Models and 4 Gas Models



Water Cooled, Add-On Cooling Units: 5, 3 and 2 Ton Capacities



Gas Fired Unit Heaters: 3 sizes.

THE DEMAND for Year 'Round Air Conditioning is HERE ... and

MONCRIEF
is READY NOW!

... with the
COMPLETE
more
VERSATILE

Line of
Year 'Round Air
Conditioning Units

THE HENRY FURNACE COMPANY

Medina, Ohio

HEATING AND AIR CONDITIONING UNITS

MONCRIEF
SINCE 1895

FURNACE PIPE AND FITTINGS



SALESMAN TAKES the mystery out of cooling equipment when showing to prospects, also plays up the engineering design and how it fits into the system recommended for their homes



EQUIPMENT IS SELECTED and laid out by William McCain as Carl E. Brown supervises the specifications

Prospect Participation Sells Quality Cooling Systems

**... for a dealer whose sales formula
is based on giving the prospect a voice in discussion
and choice of heating and cooling installations**

EVERYONE IS SELLING quality of one kind or another. Fundamentals of economics insist that low prices be accompanied by low quality because labor and products cost each dealer practically the same. There can be no wide range in quoted prices because competition forces a businessman to add to his costs just enough profit to allow him to provide the services a customer is led to believe he is entitled to.

These are the opening remarks of Carl E. Brown, Brown Heating Co., Atlanta, in dealing with a prospect who wants to talk price before giving his order for residential cooling equipment.

Explanation Precedes Estimate

"I tell them to 'set aside' for awhile the price they have been offered and let us examine the facts. Then I start with the elementary factors involved in a cooling system. I point out the window and explain how heat enters the building. I tell them about the two kinds of heat — the one they can feel and the latent heat which isn't so obvious. I point out that in every installation the factors involved must be weighed and that guesswork cannot be tolerated, that we engineer each job completely before we submit a bid because we want the

equipment we recommend to be just right — neither too large nor too small.

"In the initial survey we arrange for the prospect to take part in the activity. We ask questions about things we know thoroughly but we want the prospect to feel he is taking part in the selection of the equipment he is going to buy. We ask him what temperature he wants to maintain in the house, and if he suggests too low a temperature, we point out that we can provide it and show by actual figures how much more it will cost for every degree below 80 F. We then point out that 80 F and a 40 to 50 percent relative humidity are standard conditions for commercial establishments and mention several of the well known stores which maintain these conditions.

Prospect Education Pays Off

"It is through prospect participation that we obtain acceptance of our work and provide the prospect with an understanding of the equipment's performance. This idea pays off long after the job has been sold and installed.

"In our conversation with the prospect we ask if the

(Continued on page 115)

**MAIL NOW FOR COMPLETE
PROFIT-MAKING STORY ON**

Air Conditioning Manager

**JANITROL HEATING & AIR CONDITIONING DIVISION
COLUMBUS 16, OHIO**

Rush facts on new Janitrol air-cooled "Add On" Cooling!

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

JANITROL "ADD-ON" COOLING ALL-NEW ADVANCE DESIGN



**...with exclusive air-cooled
"PRIDE O' YARD"
compressor-condenser
unit to top them all for
Sales-Building Beauty—
Peak Cooling Efficiency!**

If you like money, you'll love new Janitrol Model SRA "Add On" cooling. It puts you on top of the lush modernization market—adapts most any warm air furnace for central cooling. Easy to install. No floor space needed. Evaporator mounts in supply outlet duct in either up-flow or downflow systems. Waterless operation eliminates sewage, plumbing and water supply problems. Pride o' Yard unit exhausts air out top, instead of sides like conventional units—protects nearby growing things from wilting, drying action of exhaust air. More efficient, more economical. Mail coupon now—or ask your Janitrol representative for all the facts!



**CASH IN ON OPERATION HOME
IMPROVEMENT**

Sponsored by Janitrol—other leading companies. Beams powerful national advertising and publicity to those millions of owners who want more comfortable, livable homes. Ask your Janitrol representative for O.H.I. modernization ads and direct mail helps.

® Janitrol
**HEATING AND AIR-CONDITIONING
DIVISION**

Surface Combustion Corporation, Columbus 16, Ohio

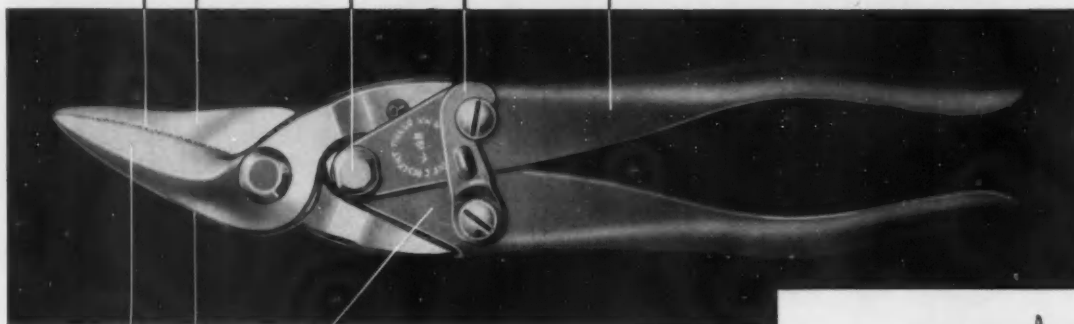
In Canada: Moffats Ltd., Toronto 15

CRESCENT AVIATION SNIPS

Crescent Aviation Snips offer many design and utility features. Tapered alloy steel blades have extraordinary hardness and toughness. Their keenly ground edges, with machine serrations, can be factory reground. Compound leverage produces tremendous shearing power with ordinary handle pressure. Three patterns: V19S, straight cut; V19L, left-hand which cuts to the right; and V19R, right-hand which cuts to the left. All have burnished blades and parkerized handles.

• Improved design... exclusively Crescent. Note these important features:

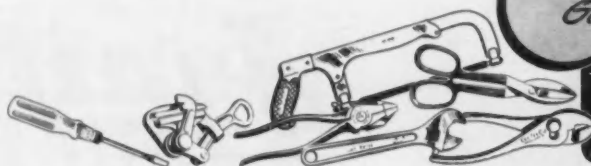
- Blade serrations are machine ground.
- Alloy steel blades... stay sharp longer.
- All bolts have self-locking nuts.
- Latch mounted flush... out of the way.
- Comfortable, man-size handles.
- Compound leverage assures easy cutting.
- Streamlined shape... won't snag metal being cut.
- Smooth, burnished head with slim, tapered blades.



Neoprene insulating sleeves are available separately or installed. Tough... resistant to oil and acids.



CRESCENT and CRESTOLOY TOOLS are sold by hardware dealers and industrial distributors everywhere. Look for the bright yellow Crescent Display panels and select from one of the world's greatest assortments of quality hand tools.



CRESCENT TOOLS
Give Wings to Work

*Sign of the Artisan
Symbol of Excellence*

Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by **CRESCENT TOOL COMPANY, JAMESTOWN, NEW YORK**

BE CONFIDENT WITH CENTURY

Every single heat exchanger we make is
100% leak-tested. When we ship it, it's
SAFE . . . and so is your profit!

You can be confident that every furnace we make is thoroughly engineered, well-built, and then well-tested. That's our contribution to trouble-free operation from the very start, with fewer profit-chewing callbacks for you. If you want a complete line of quality units—heating, cooling, or combinations, for every installation—try Century.

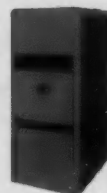


TESTING the Century-made Crescent heat exchanger under pressure . . . rarely done by others—always done by Century.



PROSPECT BOOKLET AVAILABLE

"The Home Owner's Guide to Better Living through Better Heating and Cooling" is an attractive 16-page booklet written for the consumer and available for dealer use. Check the box in the coupon for your sample copy.



Preassembled Models, gas and oil, basement and utility models.



Summer-Winter Combination Units, gas and oil, basement and utility models.



Large residential gas and oil models, basement and utility.



Commercial Units, oil.



Gravity Units, oil and gas.



Midget Boiler and Water Heater, oil.



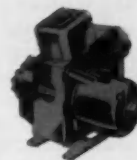
Counterflow Units, gas and oil.



Horizontal, gas and oil.



Conversion Gas Burner.



Conversion Oil Burner.

Century
CEDAR RAPIDS IOWA

ENGINEERING CORPORATION
CEDAR RAPIDS, IOWA AA

Please send me information on the complete Century line.

☐ I would also like a sample copy of the prospect booklet.

Company

Attention

Address

City State

Revolutionary Rheemaire

...a new kind of home air-conditioning system
that cuts operating costs almost in half!



Now from Rheem! Complete home cooling as practical, and *profitable*, as home heating. Every objection to existing units is designed out of the amazing new Rheemaire.

Designed for homes with forced air heat—but adaptable to others. The new Rheemaire costs less to install, and far less to operate. It takes up no usable space indoors, eliminates the noise problem, and needs no costly recirculating system or cooling tower. It's all due to the new Rheem Air-Film Condenser—a new development that *nearly doubles* compressor cooling capacity. For example, a 1 h.p. compressor delivers 1.85 tons of refrigeration.

Just think of your profit possibilities. One- or two-story homes, with or without basements—people who couldn't afford, or didn't want home air conditioning before. Best of all, you can sell, service and install the new Rheemaire *yourself*. All refrigerant lines are pre-

charged and equipped with new quick-connect fittings—no flare connections—no system evacuation or charging. And *no refrigeration mechanic* is needed.

New as it is, the Rheemaire is already a hot weather veteran. Actual units were installed last summer in homes of all types and sizes in the hottest parts of the country. They performed perfectly—through some of the longest heat waves in history.

YOU CAN RELY ON



MANUFACTURING
COMPANY

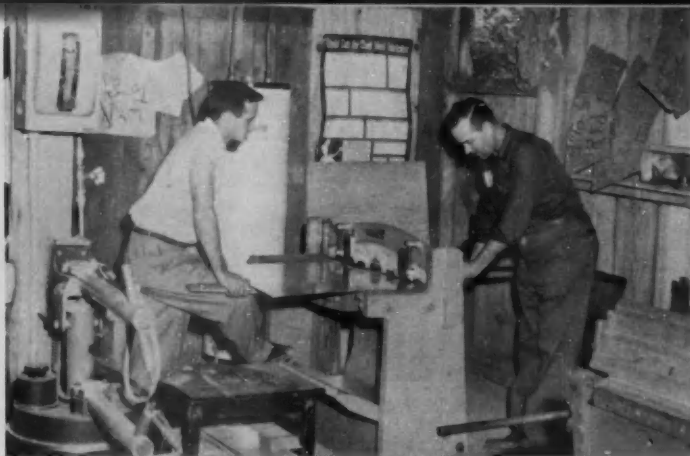
Seattle • Houston • Chicago • South Gate, California • Sparrows Point, Maryland



Write to Rheem on your company letterhead for an illustrated booklet and full information about the amazing new Rheemaire.
Rheem Manufacturing Company,
7600 S. Kedzie,
Chicago 29, Illinois.
Dept. AA-4

\$1000 CAPACITY GUARANTEE

Here's complete protection and positive proof, that the new Rheemaire is thoroughly dependable. So carefully has it been tested and proved, that Rheem has guaranteed the Rheemaire to operate at its rated capacity. It's the only guarantee of its kind that you can offer your air-conditioning customers!



ON A TOUR of the shop, the prospect observes the skill displayed by Harold Scott (left) and Charles Craton



SERVICE DEPARTMENT provides complete coverage on all equipment. H. E. Clark installs new valve plate in overhauled compressor

Dealer Helps Customer 'Sell Himself' A System

(Continued from page 110)

walls are insulated. If they aren't, we recommend insulation and show in figures how it will reduce the size of the equipment and pay for itself many times over in operating expenses. We discuss shades and awnings for windows and use heat transmission coefficients to explain how heat flow is retarded by their use. When prospects see the steps we are suggesting they seldom question our recommendation that the roof be painted a light color and that good ventilation be provided for attic spaces.

"We have observed that some prospects believe manufacturers' literature plays up the features of the equipment but fails to tell the whole story. We have found that by using manufacturers' literature and introducing some of our own — which is obvious because of its simplicity of design — we get prospects to accept the equipment we recommend.

Showroom Atmosphere Strengthens Approach

"After we have interested the prospect in our way of doing business, we invite him and his wife to visit our showroom or that of our wholesaler. The pleasant environment of the showroom does much to help the prospect to visualize the equipment in place in his home. At the showroom we continue our approach, making the prospect part of the sales approach. We remove side panels, point out the features of the equipment, operate it (if it is a package type), point out its low noise level and explain briefly what is happening.

"Once we have sold the prospect on the equipment, we start selling our company. We emphasize our engineering service, tell about the background of the men who perform this service and explain how they keep up on the latest trends. We build up our installing crew — tell, for example, about the years of training required to become a journeyman. We describe our service department, explaining how each man is factory trained to know and

understand the function of every part that goes into the equipment. We tell about the stock we carry and how replacement parts are made available as soon as needed. We tell how we carry on our own training program by having our secretary copy articles from *American Artisan* on the latest trends in engineering and servicing. We order extra copies of those articles which are especially pertinent to our operation, one for each of the men who is most interested in the particular subject.

"If our prospect gets back to the subject of price, which we shelved at the beginning of our sales approach, he frequently admits that people too often respond to the magic influence of low initial cost. About 70 percent of the people we contact recognize the logic of our explanations and give us the order. The 70 percent figure may seem pretty high to some, but in our size operation it is the one that we work from in scheduling our work. Perhaps with larger companies the figure would be far below this one, but we believe in spending lots of time with each genuinely interested prospect and we have found that a long list of leads isn't as important as contacting people who are serious about air conditioning their homes.

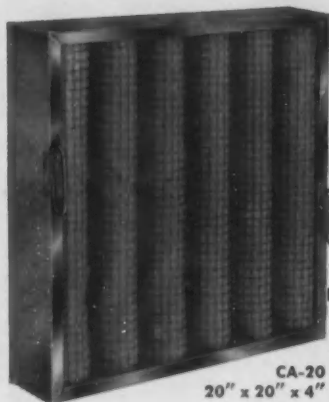
"There is nothing high pressure about our approach. We try very hard to show that we are interested in the prospect's wishes and that we want to work with him to provide the comfort he desires.

Advertising Varies with Capacity

"How do we get our leads? Mostly through the weekly ads we run in the newspapers. We vary the size, copy and sometimes the frequency of the ads to suit our ability to install the orders we get, cutting down on both size and frequency when orders get too far ahead of the installation crews. Many of the leads we get are from people who are acquainted with satisfied customers."



TYPE DY
1" THICK
STANDARD SIZE



CA-20
20" x 20" x 4"



CA-24
24" x 24" x 8"

**NEXT TIME INSTALL
THE MODERN SUCCESSOR
TO THROWAWAY FILTERS...**



CONTINENTAL

DYCON®

**DRY-TYPE, RE-USABLE
AIR FILTERS**

**for: WARM AIR FURNACES
AIR CONDITIONERS
AIR HANDLING SYSTEMS**



Efficient synthetic fiber, dry-type media in rustproof aluminum frame efficiently traps dirt by accumulated static charge. Underwriters Laboratories listed. Quickly and easily rinsed clean with cold, running water—and immediately ready for re-use, good as new, time after time, year after year.

For more exacting air-cleaning needs, CA-20 and CA-24 DYCON filters are indicated.



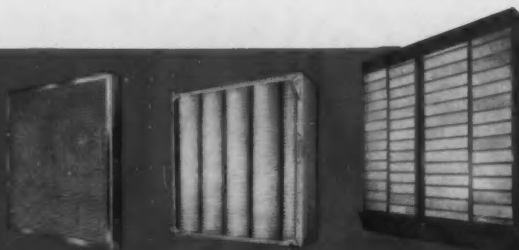
Increases profits: Greater value of this permanent-type filter—and its attractive mark-up—will put more money into your pockets. National advertising and promotion supports your sales. Contact your Continental representative, or write direct, for the profitable details.



P. O. BOX 1647

LOUISVILLE 1, KY.

CONTINENTAL
AIR FILTERS Inc.



“Don’t forget
this
Field Control, lad.
No heating plant
works its best
without
one”

See how Field Control was selected as the
National Oil Burner & Air Conditioning
Exhibitor at the New York City Convention
June 11-13, 1956. Space No. 246.

Every day, new-comers to the heating business are being taught an old lesson: That there is no substitute for good workmanship or good products. And for a score of years, dealers have numbered Field Draft Controls among the products that are good, and for which there is no substitute. We are proud to have earned the good will of so many dealers for so many years.



You have put your faith in **Field** more than 15,000,000 times



FIELD CONTROL DIVISION of H. D. CONKEY & COMPANY, MENDOTA, ILLINOIS

Affiliates: CONCO BUILDING PRODUCTS, INC. • Brick, Tile, Stone CONCO MATERIALS HANDLING DIVISION • Cranes, Hoists

REPRESENTED IN CANADA BY ONTOR LABORATORY LTD., 111 TYCOS DRIVE, TORONTO 10, ONTARIO



1 NEW CHURCH — which features "open space" architecture — will become the social hall when the new sanctuary is built. The large room is comfortably heated and ventilated without drafts, by means of the perimeter diffusers along the walls.

Perimeter Loop System Heats New Church

Single zone system distributes warm air from a central duct through a tile perimeter ring and to diffusers under windows to provide uniform temperatures and warm, draft-free floors

By B. A. Kosarin

**National Heater Co., Inc.
Arnold A. Kosarin & Associates**

Specification of perimeter warm air heating systems for churches is becoming more common each year. One of the reasons — over and above the comfort advantage — is the savings in installation costs. An example of this application for warm air distribution systems is the clay tile-concrete pipe system used in the St. Cyril of Jerusalem church near Detroit. The cost of the entire heating system for this installation was \$18,700.

The heating and ventilating requirements for this new church demanded that the concrete floor be warm, with no floor drafts, and with uniform air temperatures; that outdoor air be admitted for ventilation; and that the system be quiet.

A floor panel-convection system using the perimeter principle was

decided upon. Warm air is delivered into a distribution plenum below the furnace. From the plenum, it is distributed into a central concrete duct extending the length of the building. Lateral branches are connected to the clay tile perimeter duct, which extends around the building about 8 ft from the outside walls. The duct system is shown in Fig. 2.

At each window along both long outside walls, the warm air is supplied from the perimeter duct to air boxes below the window sill and through a diffuser in the window stool and into the church.

The system was designed for continuous blower operation so that uniform temperatures would be maintained by admitting warm air along the outside walls below the windows. A blanket of warm air over the outside walls and windows increases the air temperature near the glass surface, thus preventing the cool air

from dropping to the floor, causing drafts.

The warm air diffusers, installed on 10 ft centers, are 3 in. by 72 in., large enough to minimize air noise, reduce static pressure and insure proper diffusion of warm air along the outside walls. This vertical discharge of warm air also increases the temperature at the outside walls above the dew point, preventing condensation.

The narthex and individual rooms around the building are similarly heated with diffusers around outside walls.

Air returns through the church to large return air intakes in the walls of the furnace room. The only return air ducts used are those that connect the return air intakes to the furnace.

The absence of air ducts in the

(Continued on page 123)

New Auer "Fanaire" Sidewall Perimeter Diffuser...



Compare the ideal "Fanaire" distribution pattern with those shown below.

CHALLENGES THE INDUSTRY WITH THIS AIR-FLOW PATTERN!

Compare for yourself, with these actual smoke test photos, the complete efficiency of the all-new Auer "Fanaire". Notice how "Fanaire's" perfect pattern blankets entire wall surfaces—no blank areas—no "hot-spots", making it the ideal perimeter wall register for heating or combination heating-cooling systems.

In addition to its efficient low-resistant air diffusion, the handsome, modern appearance of "Fanaire" lends itself ideally for use with modern or traditional decorating schemes. Installed near floor level it provides a floor-to-

ceiling blanket of air, while up-side-down installation near the ceiling enables ceiling-to-floor coverage. Entire ceiling areas are blanketed when installed as a ceiling outlet.

"Fanaire" with built-in damper is available in standard 10 x 6, 12 x 4 and 12 x 6 inch sizes, and in models for base-board installation.

Write for full details on how "Fanaire" can make your perimeter installations more efficient and economical. Ask for bulletin PR-56.

SEE FOR YOURSELF—COMPARE THE "FANAIRE" SMOKE PATTERN WITH THESE LEADING SIDEWALL DIFFUSERS!



SIDEWALL DIFFUSER A



SIDEWALL DIFFUSER B



SIDEWALL DIFFUSER C




SIDEWALL DIFFUSER D



THE AUER REGISTER COMPANY

"REGISTERS AND GRILLES FOR EVERY HEATING AND COOLING NEED"
6602 CLEMENT AVENUE • CLEVELAND 5, OHIO

it's **Exciting!**

the new
clima  pump
by **PEERLESS**
year 'round
air conditioning



NOW! A HEAT PUMP

- More Compact
- Better Performance
- More Competitively priced

SINGLE UNIT...

uses only air and electricity!

Here's the perfect unit . . . no larger than an ordinary HiBoy furnace . . . needs only electricity and *free* outside air to automatically give year 'round indoor comfort. With the Clima-Pump, there is no flame, soot, fuel tanks or buried pipes. *Five year warranted* hermetically-sealed unit as reliable as a modern household refrigerator.

The Clima-Pump is today's finishing touch to the complete line of *Peerless* equipment . . . automatic heating—gas and oil-fired . . . summer air conditioning—water and air—cooled . . . prefabricated "Master-Fit" furnace fittings.

Famed for Quality... over 55 years!

REMOTE
AIR
CONDITIONER



"C" SERIES
FURNACES



THE PEERLESS CORPORATION
1853 Ludlow Ave., Indianapolis 7, Indiana
Gentlemen: Please rush me information on
your new Clima-Pump.

Name.....
Company.....
Address.....
City..... State.....



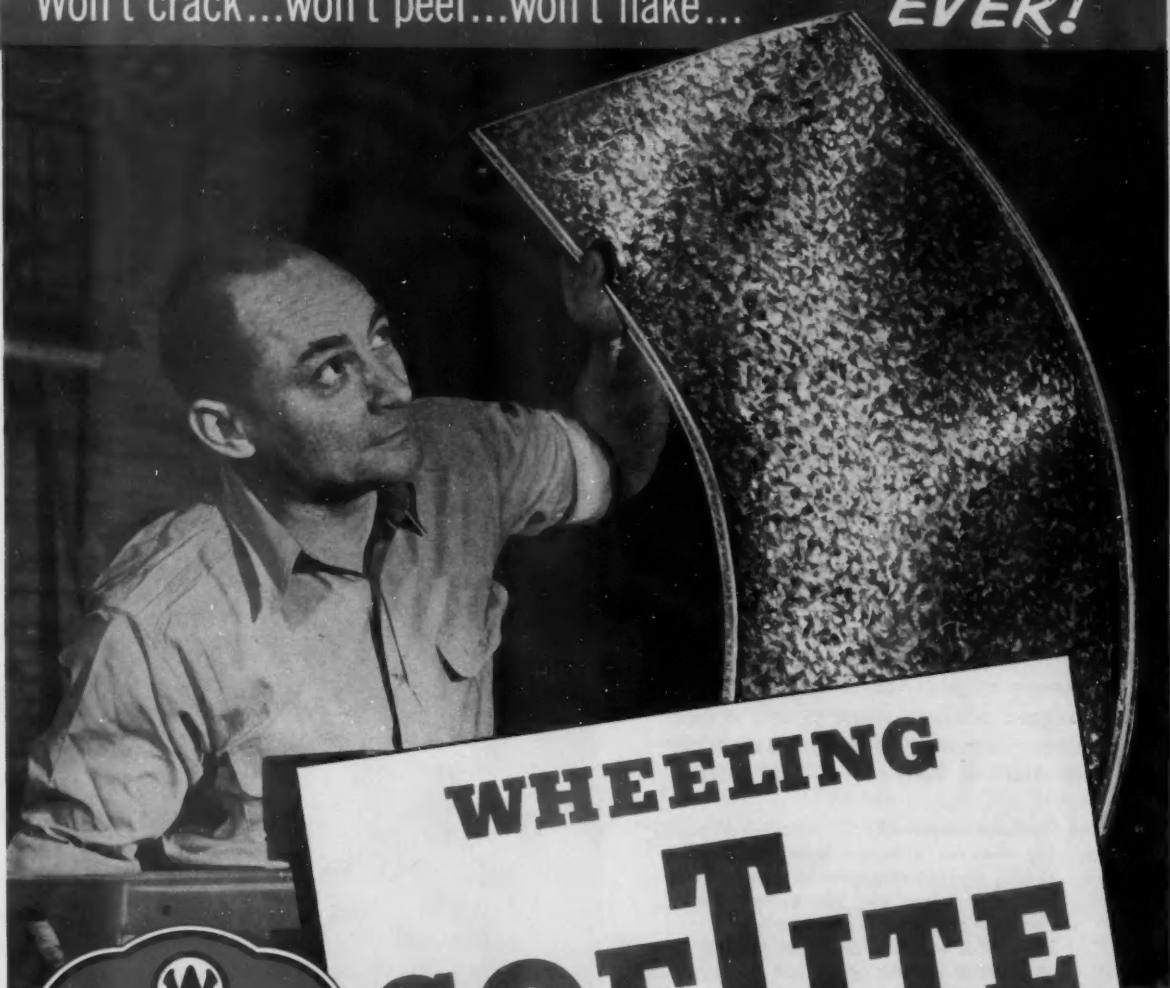
THE PEERLESS CORPORATION
FURNACES
AIR CONDITIONERS
FURNACE FITTINGS

1853 LUDLOW AVE., INDIANAPOLIS 7, IND.



Won't crack...won't peel...won't flake...

EVER!



WHEELING SOFTITE[®] COP-R-LOY[®] GALVANIZED SHEETS



This is Wheeling's Richmond warehouse. Other Wheeling warehouses and sales offices are strategically located throughout the country. They all offer immediate delivery of warehouse-stocked Wheeling items such as SOFTITE Cop-R-Loy Galvanized sheets, Galvanized Furnace Pipe, snap lock or closed seam Perimeter Heating or Air Conditioning Pipe, and accessories, Style K Gutters, Square Conductor Pipe, Flashing, Valleys, and fittings.

Here's a galvanized sheet that can really be *worked* with never any fear of chipping or flaking. Why? Because it's ductile and tight coated, made on Wheeling's new continuous galvanizing line. Bead it, seam it, fold it... do anything you like... this coating will go anywhere, do anything the base metal will!

As a result, Wheeling SOFTITE Cop-R-Loy Galvanized Sheets give tighter joints, surer seams, longer spans. They make every job look better, last longer. Remember SOFTITE next time you order galvanized sheets. That's SOFTITE, made only by Wheeling. Get full details from the Wheeling warehouse or sales office nearest you!

WHEELING CORRUGATING COMPANY, WHEELING, WEST VIRGINIA

Warehouses: Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Minneapolis, New Orleans, New York, Philadelphia, Richmond, St. Louis. **Sales Offices:** Atlanta, Houston.



FRONT VIEW Lima Series 45 Wall Diffuser actual air pattern photo

SIDE VIEW Wall Diffuser air pattern photo with arrows showing induced recirculation of room air down along wall and across floor where it mixes with flow of supply air into room.

2 "Best Sellers"

for heating and cooling in New and

Old House Installations

With increasing customer emphasis on top value for the money, you'll find it is good business — and good for your business — to give your customers these big plus values of Lima's two "best sellers".

Plus Performance—Rapid diffusion of supply air for constant comfort without drafts, at correct angles to induce aspiration of room air. Air pattern holds constant even at low cfm. Uniform velocity without whistling or rattles regardless of damper setting. Air does not strike room occupants or scrub wall.

Plus Construction—Rugged heavy gauge steel throughout, with mash-welded corners to give one-piece strength. No unsightly mitred corners.

Plus Beauty—Pleasing style lines that harmonize with room surroundings. Luxurious Lima permanent finish resists scratches and mars.

It costs no more to give your customers these big plus values of Lima Diffusers for your OHI modernization jobs and new house installations. So why not check up on these two Lima "Best Sellers" the next time you see your wholesaler.

Lima

REGISTER COMPANY, LIMA, OHIO

Sold Exclusively Through
Heating Wholesalers
and Manufacturers.



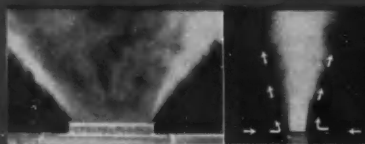
Lima Series 40 Floor Diffuser

Originally developed by Lima engineers and widely copied ever since. Equally efficient for heating and cooling. Notched vanes for quick air pattern change. Set-screw balancing adjustment. Tamper-proof locking device.



Lima Series 45 Wall Diffuser

Ideal for modernization jobs or replacing existing wall or baseboard registers when cooling is being added. Offers all the advantages of perimeter heating and cooling systems where sidewall or baseboard outlets are preferred. Simplified balancing at diffuser face.

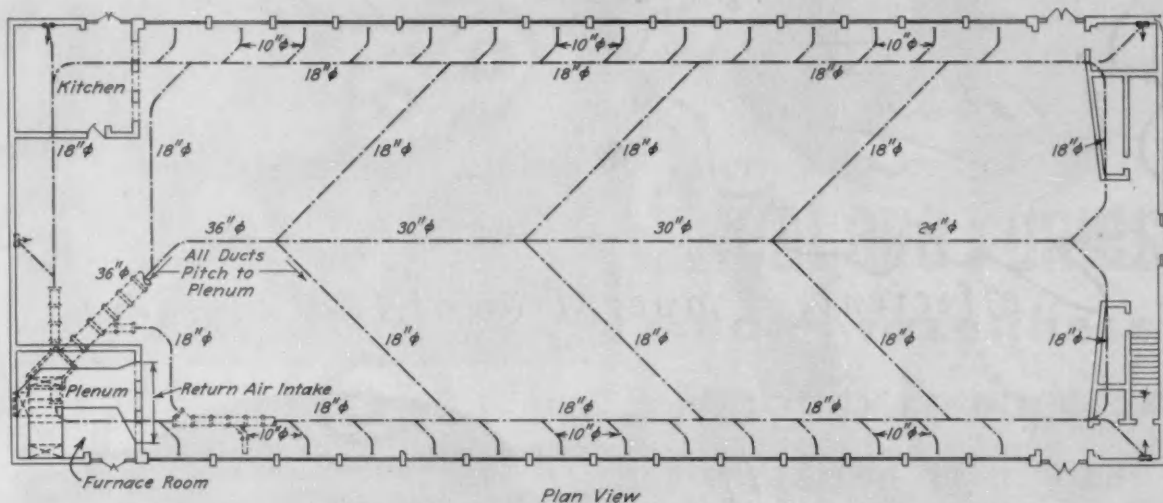


SIDE VIEW Floor Diffuser air pattern photo with arrows showing how air is pulled from within room toward outer wall, setting up induced air-circulating effect for gentle, continuous recirculation of room air.

FRONT VIEW Lima Series 40 Floor Diffuser actual air pattern photo

Church Heating Plans Include Future Cooling

(Continued from page 118)



2 WARM AIR SUPPLY SYSTEM is underground. Center duct is concrete pipe. Perimeter duct is vitrified clay tile. All ducts pitch down toward the plenum

occupied area gave the architect a free hand. This is important where the spaciousness of "open design" is the basic architectural theme, which was necessary in this installation, with eventual conversion to auditorium use. Conversion can be accomplished with no change in, or interference from the heating and ventilating system.

Dampers provide varying amounts

of outside air, and since there are no exhaust fans except in the kitchen and toilets, the building is always under pressure. This pressure is automatically maintained by a relief damper, regardless of the amount of outside air introduced. Infiltration is minimized since air from the church is constantly expelled to the outside through exfiltration. This slightly positive pressure further sim-

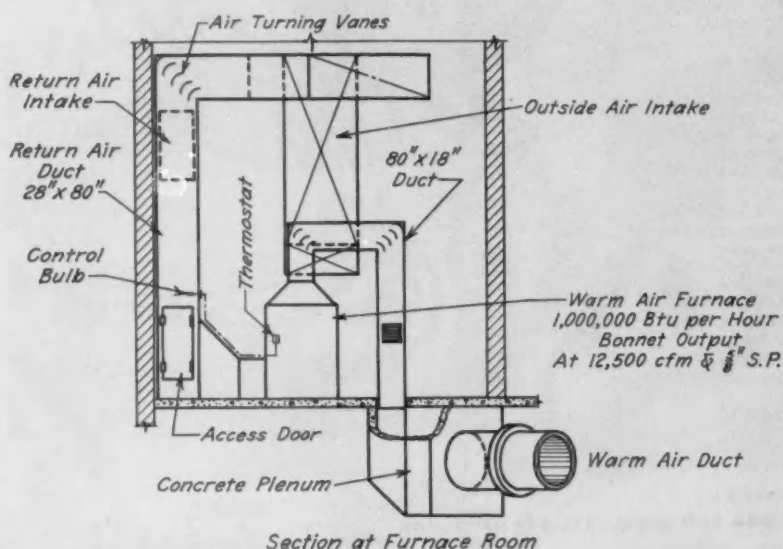
plifies the heating of such areas as lobbies and foyers, with the particular requirements for air locks and unusual heat loads.

The relief dampers are equally important in the summertime, when 100 percent outside air is admitted, and the inside air is discharged.

All of the air going to the furnace is filtered.

The air distribution system was designed to accommodate air conditioning in the future. The addition of a compressor and expansion coil will furnish dehumidified and cooled air with no changes necessary in the dampers and diffusers. The size and number of the supply ducts make possible the use of increased quantities of air with no audible air noise.

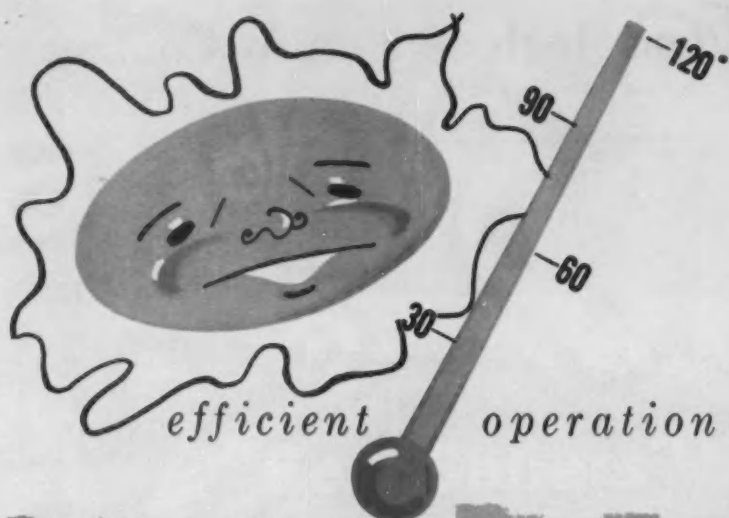
Calculations for heating, make-up air and ventilation, indicated the need for a furnace capable of delivering 1 million Btu per hr, with the fuel to be used as No. 2 oil, with blower capacity of 12,000 cfm at $\frac{5}{8}$ in. water gage external static pressure.



3 OUTSIDE AIR is provided in varying amounts by dampers, up to 100 percent for summer ventilation. A relief damper maintains a slightly positive pressure regardless of the amount of outside air introduced

Treat Church as Single Zone

The entire church is controlled as a single zone. The thermostat, (Continued on page 126)



efficient operation at 120° ambient.

Tecumseh

HERMETIC air-conditioning COMPRESSORS*

are made to take it
under the toughest
conditions.

In the past few years, Tecumseh has completed and offered to the industry, many major engineering developments on tough air conditioning problems:

1st, they did the obvious by designing a line of compressors expressly for air conditioning.
2nd, this line has been continually improved and developed by tremendous "know how" already gained as the world's leading manufacturer of compressors. The result — your choice of compressors that will perform efficiently under any air conditioning situation — compressors that will deliver full-rated capacity at 90° ambient with a 45° coil, and will continue to operate at 120° ambient and to cool even on 90% of rated voltage.

Tecumseh offers you a complete line, including compressors designed for either air or water cooled applications, single or three phase current, and a choice of stub tubes, solder valves or flange valves, with or without oil sight glasses. These various combinations allow you to select the compressor exactly suited to your needs.
Don't compromise, investigate the complete line for your application!



MODEL JE300
3 H. P. HERMETIC
COMPRESSOR
SINGLE PHASE
FLANGE VALVES

* THE ONLY COMPLETE LINE OF
HERMETIC COMPRESSORS SPECIFICALLY
DESIGNED FOR AIR CONDITIONING

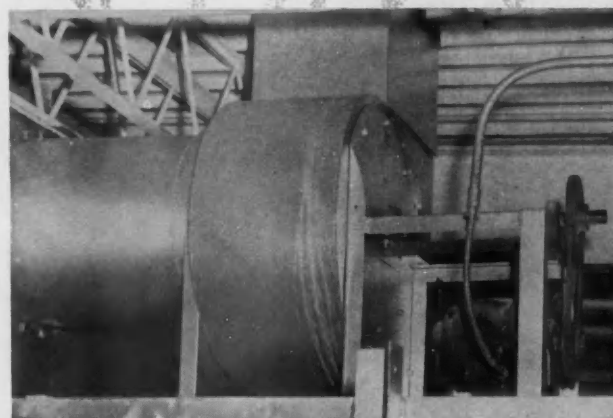
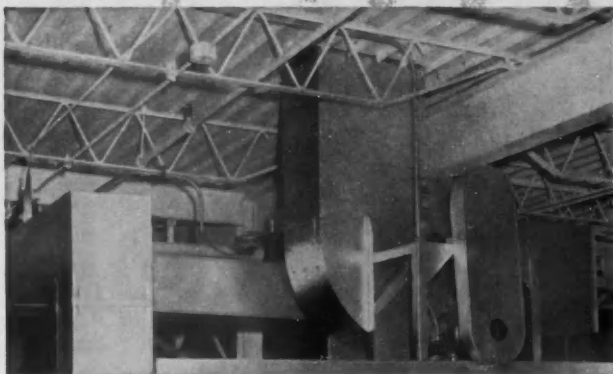


TECUMSEH PRODUCTS CO.

Over 23,000,000 Compressors in use today

EXPORT DEPT.—P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Michigan

Marion, Ohio
Tecumseh, Michigan



Heat and Fumes don't faze these Specially Engineered Peerless Blowers!

● Top picture: Peerless 222G Backward Curve Blower exhausts hot air from paint baking oven. Center picture: Peerless 135K Blower circulates hot air in paint drying oven. Bottom picture: Peerless 270L Blower exhausts fumes from paint drying oven. Another Peerless 165F Blower (not shown) in same plant forces hot air into paint baking oven. Operating temperatures: Between 300° to 500° F.

● These four specially-designed and engineered Peerless Blowers operate quietly and efficiently in the finishing department of one of the nation's most modern production plants. They were designed for economical, dependable performance in extreme heat. We can do the same for you. Installations like this are our specialty. Contact us today!

FAN AND BLOWER DIVISION
THE Peerless Electric[®] COMPANY

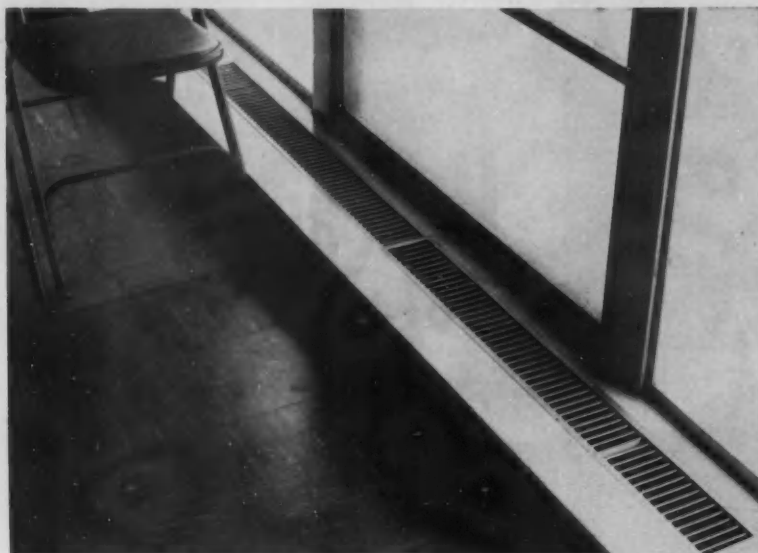
FANS • BLOWERS • ELECTRIC MOTORS • ELECTRONIC EQUIPMENT
1405 W. MARKET ST. WARREN, OHIO

Write, Wire or
Phone for Bulletin
SDA-160 Today!



Continuous Blower Operation Maintains Comfort

(Continued from page 123)



4 VERTICAL DISCHARGE of warm air eliminates draft and also raises temperature at outside walls above dew point, preventing condensation from becoming a problem

in the church proper, acts as a switch to energize the blowers. A thermostat in the return air duct energizes an interlocking relay that starts the oil burner and induced draft fan. This type of electrical circuit insures good combustion at all times and adequate heat supply as return air temperatures vary.

A modulating burner was considered not necessary because of the thermal inertia of the concrete slab which would level off the temperature peaks that are common with intermittent burner operation.

Design Passes Test of Time

A full season's operation has substantiated the planning that went into the system's design.

Coupled with good design must be competent and careful installation. The General Air Handling Co. installed the system.

While the design represents a marked departure from more conventional systems, installation presented no problems to the heating contractor. To insure complete com-

pliance with the design concepts, meticulous design details were incorporated in the mechanical prints.

Install Edge Insulation

Since it was imperative to minimize heat loss from the perimeter air ducts through the outside walls, thought had to be given to sufficient

insulation. One in. rigid insulation backed by 2 in. thick rigid glass insulation provided the needed thermal barrier.

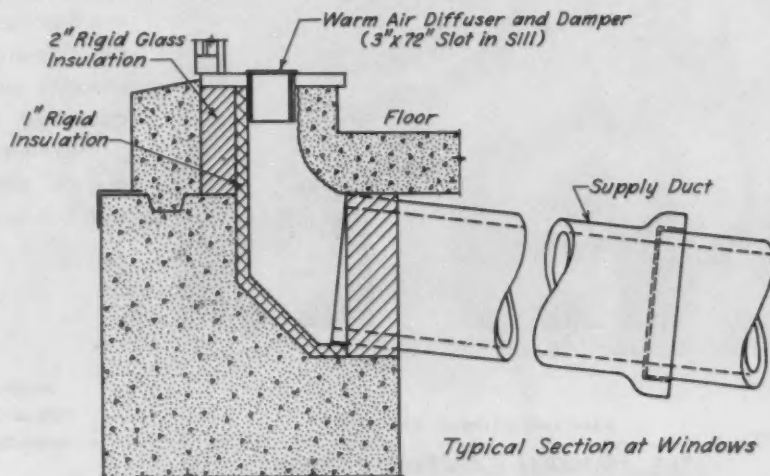
Maintain Even Temperatures

Balancing the system proved to be easy since the primary consideration was the equalization of air quantities through the diffusers. After the system reached operating temperature, differentials in temperature between the diffusers were less than 10 F. Continuous blower operation has proved to provide comfortable conditions throughout the building by minimizing temperature differences between the floor and ceiling.

Fuel Costs Reduced

Due to a higher mean radiant temperature along the outside walls, comfort was attained with a thermostat setting lower by 5 F than that for conventional warm air systems. This lower thermostat setting is an important factor as it has resulted in reduced fuel costs.

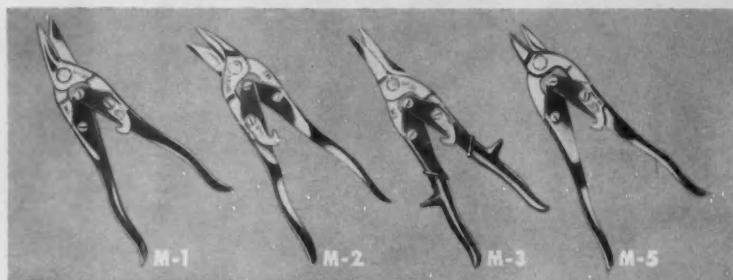
The consulting engineer was Octavius Germany, and the architect was Walter J. Rozycki.



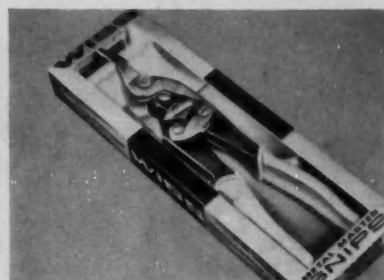
5 EDGE INSULATION of 1 in. thickness backed by 2 in. thickness of rigid glass insulation forms thermal barrier to reduce heat loss from perimeter duct and concrete slab

"I HAVE USED WISS SNIPS FOR 22 YEARS, BECAUSE THEY CUT BEST WITH LEAST EFFORT"

President M. O. Brunt, of the Brunt Manufacturing Co., Ltd., Toronto, Canada, gives one good reason why he prefers Wiss Snips. There are several reasons why they are the choice of professional workers everywhere—why they sell better, with fewer returns. Wiss snips are produced largely by the handwork of skilled workers. Each pair is rigidly tested and guaranteed perfect. Bolts are set precisely to reduce wear and to increase cutting power with the least effort.



WISS METAL MASTER SNIPS: Compound action design delivers amazing cutting power. These 10" snips cut with about one-half the effort required for standard 12½" snips. One edge serrated to prevent slipping. M-1 (cuts left) and M-2 (cuts right) are designed to cut the most intricate scrolls and circles. M-3 is for shallow arcs and straight cutting. M-5 Bulldog Heavy Duty snips are tops for notching, nibbling and cutting shallow arcs in sheet metal as heavy as 16 gauge.

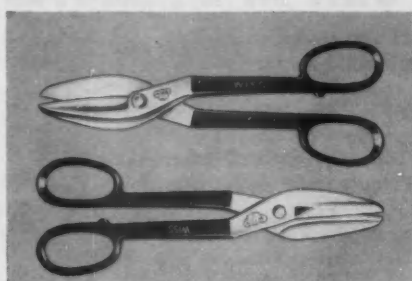


NEW HANDLE GRIPS IN BRIGHT IDENTIFYING COLORS!

Famous Wiss Metal-Master snips are now available with vinyl plastic grips—tough, resilient, long-wearing, acid and grease resistant. For instant identification by the worker, M-1R is fitted with bright red handles; M-2R with green handles; M-3R with yellow handles.

WISS the Winner in laboratory tests!

In grueling tests made by an independent laboratory, Wiss Metal-Master, inlaid and solid steel snips out-performed other leading brands. Wiss snips in each category proved to cut cleanly with less effort required. The tests were so severe that some competing brands were damaged—cracked at bolt, handle bent out of shape. This is conclusive, unbiased proof that Wiss snips are the finest and most satisfactory available to metal workers. The laboratory report stated: "Wiss inlaid straight cut snips showed far superior cutting qualities than the other shears tested and should be listed in a separate class from the solid steel snips."



WISS INLAID SNIPS

High carbon crucible steel welded to a hot drop-forged frame provides that extra service demanded by professional users everywhere. Six Straight Cutting sizes from 11½" to 17", including Bulldog Snips for notching. Three Combination* Cutting sizes, 12½", 13½" and 14½".



WISS SOLID STEEL SNIPS

For those whose requirements are less specialized than the professional user. Hot drop-forged of fine carbon steel, they meet or exceed government specifications. Four straight cutting sizes, 8" to 12½". Four Combination* Cutting sizes, 7", 10", 13" and 16" Bulldog Snips for notching.

*Made with straight blades, but ground and shaped so they readily cut curves and irregular shapes as well as straight.



**J. WISS & SONS CO.,
NEWARK 7, NEW JERSEY**

World's Largest Manufacturers of Shears, Scissors, Pinking Shears, Metal Cutting Snips and Garden Shears



REMOVE THERMO-ELECTRIC UNIT IN 2 MINUTES

— *without removing regulator from line*

Take out 4 screws and the Thermo Electric Unit is quickly removed for inspection or replacement without breaking a single pipe connection. This feature of **SERVICEABILITY**, pioneered by Thermac, is worth thousands of dollars in time to the appliance dealer who is vitally interested in simplifying and reducing costly field service.

Save on control equipment cost too. Here in the Thermac Series SR Combination Pressure Regulator and Thermo Electric Safety Pilot you achieve in **ONE UNIT** not only the finest gas regulator available but an integral easy-to-get-at Safety Pilot which eliminates the need of an expensive electric relay or separate safety control.

This easy-to-get-at Thermac all-in-one gas control is growing in popularity among manufacturers and dealers everywhere. Send today for complete literature and prices.

SERVICE IS OUR JOB—
ON THE SPOT ENGINEERING
ASSISTANCE AND IMMEDIATE
DELIVERY.

THERMAC



CERTIFIED BY AGA.



COMPANY 800 East 108th Street • Los Angeles 59, California



York's new training program unlocks the door to big profits in home air conditioning

It took years to develop, but it was worth it! Because York now offers you a training program head and shoulders above anything else in the industry. It's designed for quick action . . . to get you into the rich residential field *fast*, and help you get *more out of it* once you're in! Only York, with over 70 years in the cooling field, could bring you such a course. You'll be taught by factory-trained experts, using methods that have been thoroughly tested and proved to work. And you don't have to be an engineer to follow what's going on. This is your chance to get in on the ground floor of the booming home air conditioning industry. Don't miss out! Call your nearby York distributor for complete details, or mail the coupon today!

**York teaches you how . . .
makes installation easier . . .
gives you more to sell!**

- York Home Air Conditioners are engineered and factory-assembled for *quick, easy installation*. Electrical controls pre-wired at

the factory . . . you make only a few simple connections. York gets you in and out—fast!

- Each cooling system *hermetically sealed*. No belts, pulleys or gaskets—no nuts or bolts to leak, squeak or break. Oil and Freon are sealed in, no field charging, no tubes to run. Your profits don't go down the drain in costly service calls!

- Simple *capillary tube feed* controls flow of refrigerant. No summer-winter changeovers required. There's nothing to wear out—no tricky expansion valves to get out of order.

York has the models, too!

Waterless and water-cooled, "add-on," year-round, gas and oil-fired, remote systems, handsome packaged units . . . there's a York Air Conditioner for every need. Across the board, York gives you *more . . . more training, more quality, more models, more profits!* Get in touch with your York distributor today. Or mail this coupon.



*the quality name
in air conditioning*

**Manager of Sales, Commercial Division
York Corporation, York, Pa.**

Rush me complete details on York's new Training Program and what it means to me.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

AAA

Old Law of Acceptance Gets New Interpretation

Modern forms of rapid communication put new twists into the law of acceptance by mail. Higher courts must rule on issues still in doubt, however

FOR YEARS AN offer such as the order of a customer for goods or services, when made by mail, has been a binding contract when the letter of the dealer or contractor accepting the order is deposited in the post office or mail box.

The statement of this law by a well known legal authority says, "In creating the contract the negotiations may be conducted by letter and the contract is complete when the answer containing the acceptance of a distinct proposition is deposited by mail or otherwise, providing it be done with due diligence after the receipt of the letter containing the proposal and before any intimation is received that the offer is withdrawn."

"Putting the answer by letter in the mail, containing the acceptance and thus placing it beyond the control of the party, is valid as a constructive notice of an acceptance."

Court Review Alters Law

A few months ago, a case came before the United States Court of Claims for review. In its decision the court laid down another rule of law that would set aside this old rule and might serve as a pitfall for the contractor or dealer unfamiliar with the change.

After submitting a bid by mail to the federal government for supplying material, the dealer discovered an error in his bid. He telephoned the government office to which the bid had been forwarded, explained the reason for his request and asked to withdraw his bid. Later he re-

ceived notice of the acceptance of his bid and was told over the telephone that the acceptance had already been forwarded him. Subsequently his request for a withdrawal of the bid was refused. Under the law, as it has been in the past, the mailing of the letter of acceptance by the government would have completed a binding contract.

Post Office Sets Rules

Post office regulations in force at the time this old law was established ruled the sender parted with all control when his letter was deposited with the post office. Later however the rule was changed and at the time of this incident the post office regulation provided:

"On receipt of a request for the return of any article of mail matter, the postmaster or railway mail clerk to whom such request is addressed, shall return such matter in a penalty envelope to the mailing post master who shall deliver it to the sender upon payment of all expenses and the regular rate of postage on the matter returned."

After this dealer had completed his contract and furnished the materials agreed upon, he sued for recovery of \$1,640.60, the amount in excess of his bid. The government rested its defense on this old law that a binding contract had been made upon acceptance of the offer.

In a decision of this action a few months ago, the United States Court of Claims awarded the dealer a judgment for his loss.

"We are living in a time of

change," said the court. "The theories of yesterday, proved by practice today, give way to the improvements of tomorrow. To apply an outmoded formula is not only unjust, it runs counter to the whole stream of human experience. It is like insisting on an ox cart as the official means of transportation in the age of the automobile. The cart served a useful purpose in its day but it is now a museum piece."

"The old rule was established before Morse invented the telegraph as a means of communication. At that time no faster mode of communication was known. But in the light of the faster means of communication, the post office department wisely changed the rule. The reason for the old rule has disappeared. This does not change any principle, it simply changes the practice to suit the changed conditions but leaves unchanged the principle of finality which is just as definite as ever though transferred to a different point by the new regulation."

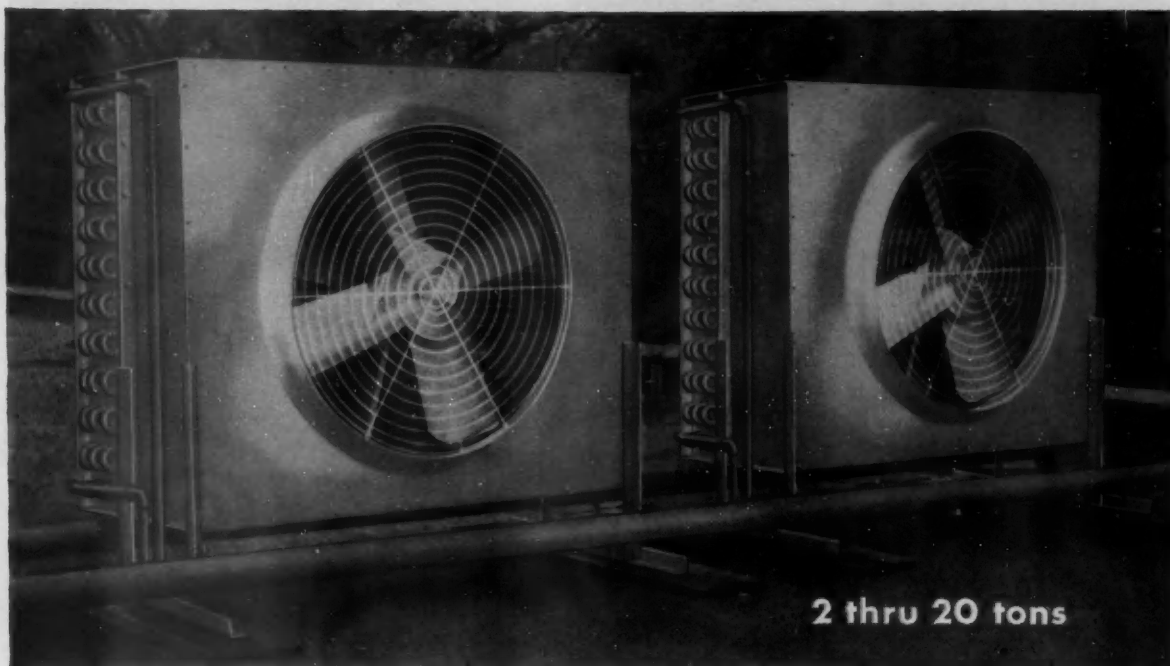
Appellate Courts May Rule

The change in the law by this decision may not meet with the approval of the appellate courts. For the present, the acceptance of any offer made by mail, by which a contract is closed, becomes uncertain. Can an order be withdrawn after the letter of acceptance has been mailed but before its receipt by the customer? Or is the transaction closed and does the customer lose his right to countermand an order when the letter of acceptance is dropped into the mail box? Answers to these questions must await a final determination by the higher courts.

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]

So Halstead & Mitchell Engineers said:

"LET'S GIVE THIS INDUSTRY A BETTER AIR-COOLED CONDENSER"



2 thru 20 tons

Now we proudly call to your attention the Halstead & Mitchell Air-Cooled Condenser for waterless air conditioning and refrigeration. This is today's *better* remote Air-Cooled Condenser.

It is engineered to a new principle called "Co-ordinated Design," and this is engineering pioneering which has coordinated capacity, performance, structural design and appearance to give:

- 1. Extra-Safe Capacity Ratings** — made possible by a unique "dimpled" fin giving 15% added heat transfer, as well as a core designed for higher air volumes at lower fan speed.
- 2. Extra Years of Working Life** — insured by exclusive, proven Halstead & Mitchell protection against corrosion; lifetime ball bearings; and a tubing assembly pattern which is self-reinforcing and thus deadens vibration before it starts.
- 3. Extra-Quiet Operation** — which is the direct result of deep-pitch fan blades driven at slow speeds.
- 4. Extra-Easy Multi-Circuiting** — developed for Halstead & Mitchell remote Air-Cooled Condensers by engineers

who know what simpler manifolding and selection of circuits can mean when several air conditioning and refrigeration machines must work off a single coil.

Even more important, you know these Air-Cooled Condensers bring you—with their Halstead & Mitchell nameplate—an assurance of the highest quality in the industry. Whether you are jobber, contractor, architect or manufacturer (and we'll be pleased to give quantity quotations), order Halstead & Mitchell "Co-ordinated Design" for the *better* Air-Cooled Condenser.

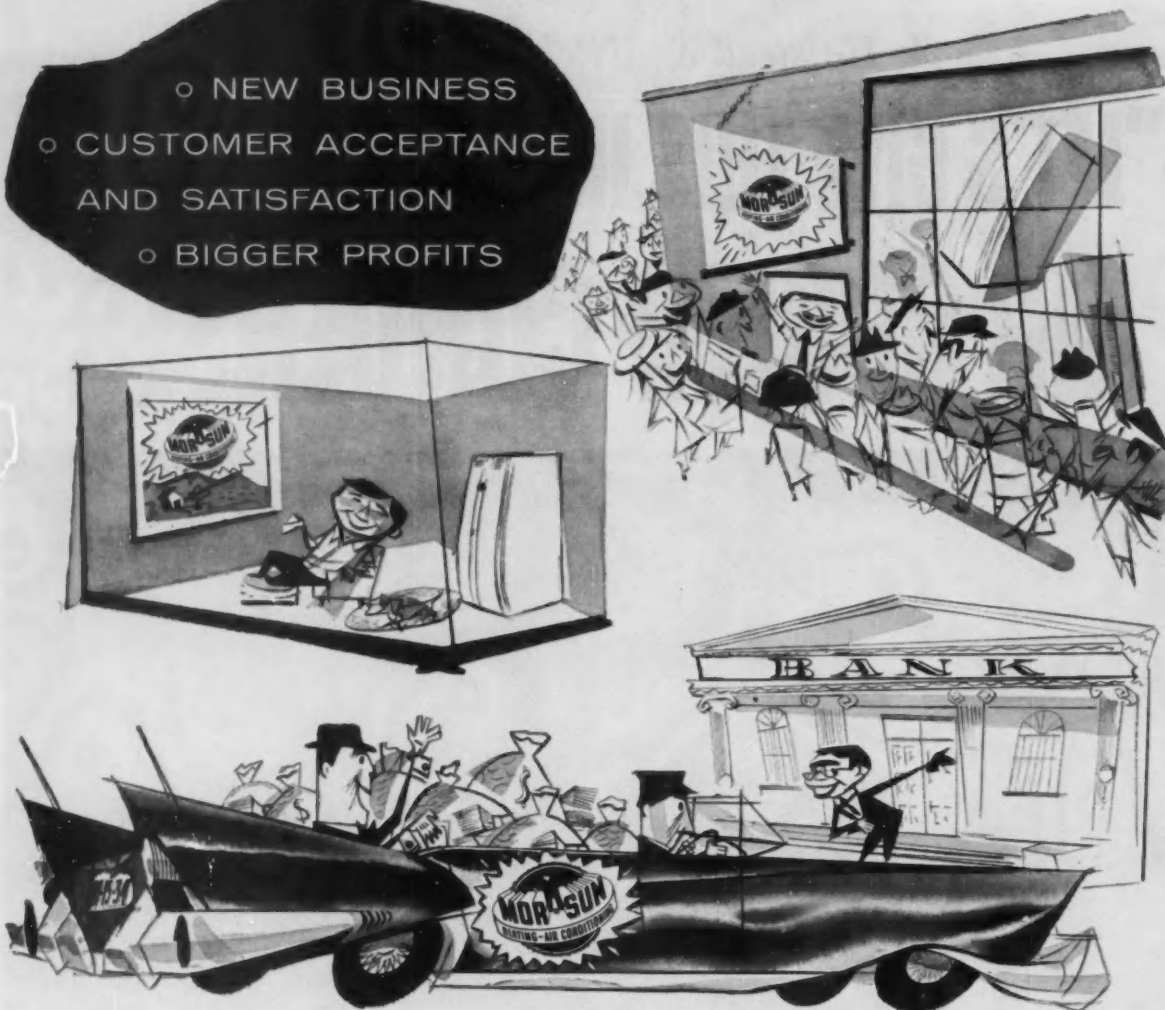
WRITE FOR BULLETIN AC-100

Halstead & Mitchell

BESSEMER BUILDING, PITTSBURGH 22, PA.

Manufacturer of THE INDUSTRY'S WIDEST SELECTION OF COOLING TOWERS
World's Largest Manufacturer of WATER-COOLED, CLEANABLE CONDENSERS

- NEW BUSINESS
- CUSTOMER ACCEPTANCE
AND SATISFACTION
- BIGGER PROFITS



*You get so much more
... with*

MOR-SUN

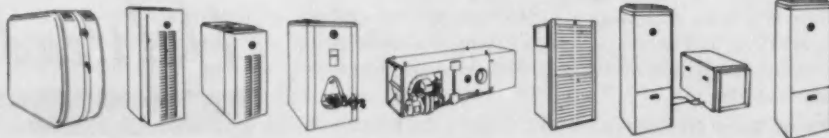
HEATING AND AIR CONDITIONING

Here are the reasons YOU should be a Mor-Sun Dealer...

- A COMPLETE LINE** of warm air heating and air conditioning equipment.
- QUALITY DESIGN AND CONSTRUCTION** that ensures customer satisfaction.
- THE RIGHT SIZE...THE RIGHT PRICE** for every home heating and cooling market.
- NATIONWIDE DISTRIBUTION** with immediate delivery from local stocks.
- SALES TRAINING** sponsored by Mor-Sun—practical, professional "how-to-sell" instruction.
- NATIONAL ADVERTISING** that pre-sells Mor-Sun, builds customer recognition and acceptance, boosts your business and profits.
- SALES PROMOTIONAL HELPS**, selling tools to help you interest the prospect and close the sale.
- CO-OP ADVERTISING PLAN** for your local use—newspaper, radio, TV, and other approved media.

FOR ALL THE DETAILS of one of the soundest business opportunities open to heating dealers, see your nearest Mor-Sun Distributor—he's listed in the Yellow Pages of your telephone directory—or write directly to: Mor-Sun Furnace Division, Morrison Steel Products, Inc., 609 Amherst Street, Buffalo 7, N.Y.

THE COMPLETE LINE



● There's a Mor-Sun Warm Air Furnace and Air Conditioner for every home heating and cooling requirement... the right size... the right price... for new construction or modernization.

Also manufacturers of Morrison Roly-Door Steel Sectional Overhead Doors and Morrison Service Bodies

NOW! ANOTHER STANDARD FIRST!

*throughout the house,
throughout the year,
solid comfort from here...*



...to here

install Standard's

new **B-24**

perimeter

baseboard diffuser!

The B-24 maintains heating and cooling comfort at a new high level, because it spreads air evenly over outer walls, keeping floors warm, windows free of condensation, and rooms uniformly comfortable from floor to ceiling. It replaces lost heat immediately, where it's lost, and provides constant, gentle air circulation.

Adjustomatic Control! makes damper so easy to adjust a child can do it!

Easier to install in new or old construction! has built in damper; boot opening adjustable to max. of 12¼" x 14"; comes in 2 ft. sections, 4½" high!

Beautiful decorator design! modern lines, tan metallic baked-on enamel finish!

**Act now! Mail the coupon today for
FREE literature!**



**STANDARD STAMPING
& PERFORATING CO.**

3137 W. 49th Place, Chicago 32, Illinois

Gentlemen: Please send literature and discount sheets on your new B-24 Perimeter Baseboard Register.

Name

Company

Address

City Zone State

when the job calls for a space-saving horizontal . . .
IT WILL PAY YOU TO INSTALL



AS A SPACE SAVING
 CENTRAL HEATING PLANT . . .
 the Southerner can be installed almost
 anywhere . . . crawl space, attic, basement,
 or under the stairs.

the original
**PERFORMANCE
 PROVED**
**Norman
 Southerner®**
 horizontal
 forced-air
 gas-fired
 furnace

Engineered for fast, economical installations, the Norman Southerner is priced competitively to help you sell the new project construction market.

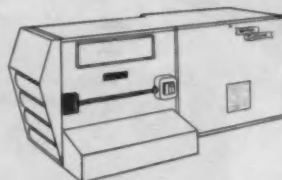
What's more you get real profit protection! The Norman Southerner, performance-proved in thousands of trouble-free installations, is backed by a 10-year written factory warranty.

The versatile Norman Southerner opens the door to more profitable sales than any other horizontal, for these important reasons:

1. Wider range of input capacities
2. A.G.A. approval as either a unit heater or a central heating plant
3. A.G.A. approval with static pressures up to 0.50" (to accommodate larger blowers for use in combination with air-conditioning)
4. A.G.A. approval for temperature rises of 70° to 120° F (making it adaptable for economical small pipes).

Write for prices and details plus a copy of the Norman Sketchbook, the most profitable visual sales tool in horizontal heating.

AS A UNIT HEATER



The Southerner is the only horizontal A.G.A. approved as both a unit heater and a central heating plant. The simple addition of double deflection louvers makes a unit heater, thus reducing jobber and dealer inventory requirements.



Manufacturers and designers
 of quality gas heating and
 air conditioning equipment.



Norman®

PRODUCTS COMPANY

1150 Chesapeake Avenue, Columbus 12, Ohio



Schoolroom Heaters



Upshot and inshot Norman
 residential and industrial Conversion Burners



Duct Furnaces

In Building, THIS makes sense...*



***FIRST COST can be the LEAST COST
if it's the LAST COST**

**"INFO" for Architects
and Builders**

1 "AL Stainless Steels for Building"—12 pages on stainless grades, properties, forms, finishes, standard "specs," uses and advantages.

2 "Stainless Steels for Store Fronts and Building Entrances"—40 pages of valuable data on examples and details. AIA File No. 26D.

3 "Stainless Steel Curtain Walls"—A 24-page progress report on methods. AIA File No. 15-H-1.

Write for Details

Address Dept. AA-76

Take the lobbies of big buildings as an example, so many of them all agleam with stainless steel on walls, columns, elevator enclosures, etc.

They weren't built that way just to *spend* money. Stainless was used to **SAVE** money, because of all modern surfacing materials, nothing else is at one and the same time as hard, strong and lastingly beautiful—as resistant to heat, wear and corrosion—as easy to clean and keep clean as stainless steel. *Nothing else lasts as long and costs as little in the long run!*

Lobby interiors are only a case in point. The same advantage of long-term economy holds good for stainless steel curtain wall panels on building exteriors. Or stainless store fronts, marquees and entrances. Or stainless windows and doors, railings, grilles, roofs, drainage systems, etc.

• Wherever a surface or a product has to take a beating and *last*, AL Stainless can save you money. Let us give you any information or technical assistance you may need. **Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.**

Make it BETTER-and LONGER LASTING-with

AL Stainless Steel

WAB 3732A Warehouse stocks carried by all Ryerson Steel plants



EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the application of these products. For additional product information which is available, see this month's New Literature department

Air Cooled Air Conditioners

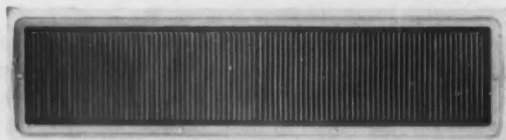
SRA MODELS air cooled air conditioners in 2, 3 and 5 ton capacities, designed for combination with high-boy, lowboy or counterflow furnaces — *Janitrol Heating and Air Conditioning Div., Dept. AA, Surface Combustion Corp., 400 Dublin Ave., Columbus 16, O.*



Accessory blower package is optional for applications requiring more blower capacity than furnace will provide. Evaporator coil mounts in outlet air duct, above or below the furnace. Aluminum fins are expanded on copper tubing. Compressor-condenser unit has top exhaust, designed to prevent dehydration of shrubs; ground air is used for cooling. "Low louver" styling is designed to harmonize with any architectural motif.

AC Return Air Grilles

No. 21 AND No. 23 air conditioning return air grilles for either sidewall or baseboard installation —



Air Control Products, Inc., Dept. AA, Coopersville, Mich. Vertical fins are designed to provide maximum free area for each unit. Grille sizes range from 8 × 6 in. to 30 × 6 in. Units have two tone beige finish; face of each grille is styled to blend with any interior.

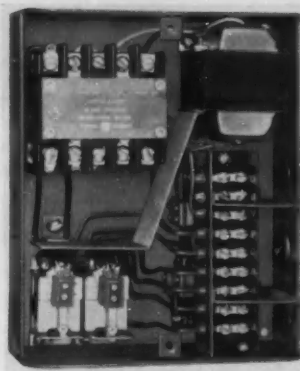
Gold Finish For Aluminum

NON-FADING gold finish for aluminum sheet, accomplished through controlled anodization—*Kaiser Alu-*

minum & Chemical Corp., Dept. AA, 1924 Broadway, Oakland 12, Calif. No dyeing is involved; variety of shades and tones are possible in bright or satin finishes. Certain readily alloyed constituents are added to molten aluminum which is later anodized to take on gold color. The alloy for most applications will be applied as an integrated cladding on standard aluminum alloy sheet; under normal conditions the metal will be formed and the product fabricated prior to anodizing. Gold finish is said to increase corrosion and wear resistance and to withstand boiling water temperature without fading.

Air Conditioner Control Panel

MODEL RS-108 master control panel designed to provide automatic centralized control of year 'round air conditioning systems — *General Controls Co., Dept. AA, 801 Allen Ave., Glendale 1, Calif.* Transformer,



relays, pressure switches, motor contactors and other electrical controls are located in the unit. All components are prewired to accessible terminal blocks. Low voltage terminals are isolated from high voltage terminals. Standard models are in various contactor ratings. Units are available for pilot duty in 5 and 10 hp in single and three phase respectively.

Gas, Oil Fired Furnaces

LINE OF GAS and oil fired furnaces ranging from 70,000 to 200,000 Btuh input and from 80,000 to 125,000 Btuh output—*Gibson Refrigerator Co., Dept. AA, 515 W. Williams, Greenville, Mich.* Highboy unit designed for closets and utility rooms is in five sizes from 70,000 to 200,000 Btuh gas fired and from 80,000 to 125,000 Btuh output in three sizes, oil fired. Basement

CHASE[®]



IS THE

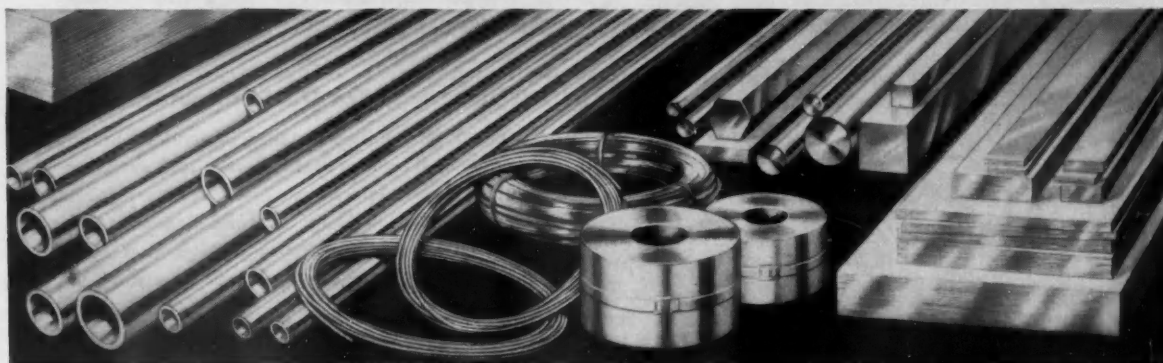


PLACE



Illustrated above: Just three of the 25 efficient Chase warehouses dotting the nation.

FOR STAINLESS STEEL!



Chase



BRASS & COPPER CO.

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

CALL THE CHASE WAREHOUSE NEAR YOU!

The Nation's Headquarters for Brass & Copper (sales office only)

Atlanta	Chicago	Denver	Indianapolis	Minneapolis	Philadelphia
Baltimore	Cincinnati	Detroit	Kansas City, Mo.	Newark	Pittsburgh
Boston	Cleveland	Grand Rapids	Los Angeles	New Orleans	Providence
Charlotte	Dallas	Houston	Milwaukee	New York	Rochester
	St. Louis	San Francisco	Seattle	Waterbury	

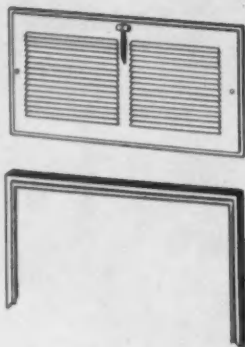
equipment developments

(Continued)

model is in same sizes, oil and gas fired. Counterflow units are in 70,000 to 105,000 Btuh input, gas fired and 80,000 to 125,000 Btuh oil fired models as well as in suspended oil fired models rated at 80,000, 100,000 and 125,000 Btuh output.

Air Conditioning Registers, Grilles

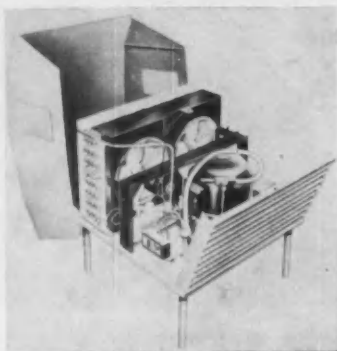
REGISTERS and grilles for heating and air conditioning applications — *Kalamazoo Furnace and Appliance Mfg. Co., Dept. AA, 100 Rochester Ave., Kalamazoo, Mich.* One unit is applicable to two operations, the



company states; application of special "E" frame makes it possible to transform the sidewall unit into a baseboard installation. Warm air registers range from 8 × 4 to 14 × 6 in.; cold air intake grilles are from 8 × 4 to 30 × 8 in.; baseboard frames are 8 × 6 to 14 × 6 in. Vertical fins are optional.

Add-On Air Conditioners

AIR CONDITIONING units designed for combination with all heating systems — *U.S. Machine Div., Stewart Warner Corp., Dept. AA, 1826 Diversey Pkwy, Chi-*



cago 14. Remote condensing units range from 22,500 to 62,000 Btuh capacities in three sizes, air or water cooled. Evaporator section is mounted atop highboy furnaces, in counterflow models for perimeter cooling or with lowboy units, utilizes existing duct work and furnace blower. "A" type evaporator coils are for ver-

tical flow; "H" type is for horizontal flow. Blower motor ranges from 1/4 to 1/2 hp; diameter is from 9 to 15 in.

Portable Bender

"FOUR-IN-ONE" bender which can be mounted on truck, workbench, 4 in. or larger vise or on metal stand—*J. B. Sebrell Corp., Dept. AA, 300 S. Los Angeles St., Los Angeles 13.* Unit is said to bend steel flat bars up to 2 1/2 × 1/2 in.; round and rectangular steel and reinforcing steel bars through 1 in.; steel pipe from 1/4 through 1 1/4 in.; steel, aluminum and copper tubing through 1 5/8 in.

Wide Insulation for Steel Studding

EXTRA WIDE web-to-web multiple aluminum insulation designed to provide complete coverage for wider centers common to steel studding as compared to wood framing—*Infra Insulation, Inc., Dept. AA, 525 Broad-*



way, New York 12. Designed to fit in 24, 30, 48, 60 in. or wider stud spaces in single units or in combinations, the insulation is in continuous lengths up to 750 ft. Flanges are attached to framing with specially designed clips.

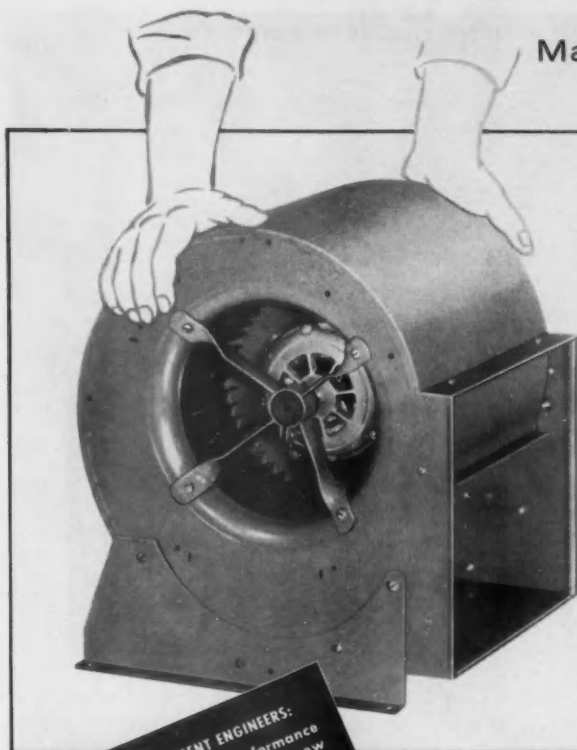
After-Filter Bags for Dust Collectors

DACRON AFTER-FILTER bags installed as standard equipment on Model FB cyclone dust collectors and available for machines now in operation—*Torit Mfg. Co., Dept. AA, 287 Walnut St., St. Paul 2, Minn.* Bags are said to be fire-, shrink-, and moth-proof. After-filter bags permit recirculation of cleaned air indoors instead of exhausting it outside.

Press Brake

"CONNECTICUT" MODEL press brake rated at 24 tons capacity—*W. Whitney Stueck, Inc., Dept. AA, Old Saybrook, Conn.* Model 24-A-412 has all steel gearing, front-operated variable speed drive, 1 hp motor and front-operated back gage. Unit is said to bend 4 ft of 12 ga mild steel over a 7/8 in. die. Bed and ram are 48 in. long; distance between side frames is 32 in.

Makes modern, compact designs
still more practical



THE NEW
Brundage
POWER-CENTER
BLOWER

TEST AND DEVELOPMENT ENGINEERS:
Because of its different performance characteristics, this unit opens new design possibilities. We suggest that you avail yourself of Brundage test data in the early stages of your development program.

The demand for more compact equipment—and ever-higher performance—calls for maximum blower output under increasing static pressures.

The Brundage Power-Center Blower fits this need to a "T."

Using the new Iron Fireman-developed motor, the Brundage Power-Center Blower eliminates the space—and the cost—required for externally mounted motors, belts, and drives. And test results show that the Power-Center maintains efficiency in the highest static pressure ranges.

Along with these design advantages, the Power-Center affords a new measure of durability. With a rubber cushioned shaft supported on both ends, and sealed ball bearings, it will run quiet and true. It will add to your products' reputation.

Presently available in limited test quantities, the Power-Center will be in full production soon. Now is the time to schedule your test and development program.

MOTOR AND WHEEL are integrally joined, can't work loose. You're assured of full efficiency and quiet operation for customer satisfaction.



UNIVERSAL MOUNTING gives you the greatest design freedom. Each blower is readily installed in any standard discharge position.



TEST BLOWERS are being supplied as motors become available. Brundage engineers will gladly assist you in test and development work.



THE *Brundage* COMPANY
504 North Park Street Kalamazoo, Michigan

Blower Specialists
for 35 Years

looking for
ECONOMY
 with
PERFORMANCE
 with
RELIABILITY?



then just look for
SPRATOWERS*

Your search for maximum cooling efficiency at basic cost begins and ends with Spratowers. Only these Marley natural draft cooling towers give you and your customers premium performance at a popular price.

The principal reason for Spratower performance superiority is the unique spray system that achieves maximum water break-up and air-water contact. This spray system is the culmination of years of research by the world's largest staff of cooling tower experts. It is a perfectly balanced system — and more important, a *scientifically tested* system that takes the guesswork out of performance. Easy maintenance and long life are assured by the patented non-clog nozzles of Marley's own design and by California redwood structural members.

Spratowers are readily available in 10 sizes from 2 tons upward from distributors in more than 300 towns. Your local distributor will welcome the opportunity to prove beyond question that *there are many spray towers . . . but only ONE Spratower.*

*Trademark Reg.

"Nothing cools as well as water . . . nothing cools water as well as a Marley Cooling Tower"



The Marley Company
 Kansas City, Missouri

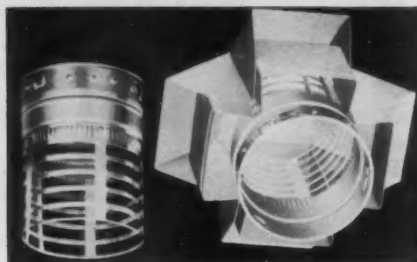
equipment developments

(Continued)

Stroke is 2 in.; adjustment of ram by means of enclosed worm geared pitmans is 1½ in. Die space over bed is 7½ in. with stroke down, adjustment up, and gap is 6 in. deep, the company states.

Grille for Gas Vents

"BELMONT TOP" grille designed to keep debris out of external gas vents — *William Wallace Co., Metalbestos Div., Dept. AA, Belmont, Calif.* Interior grille



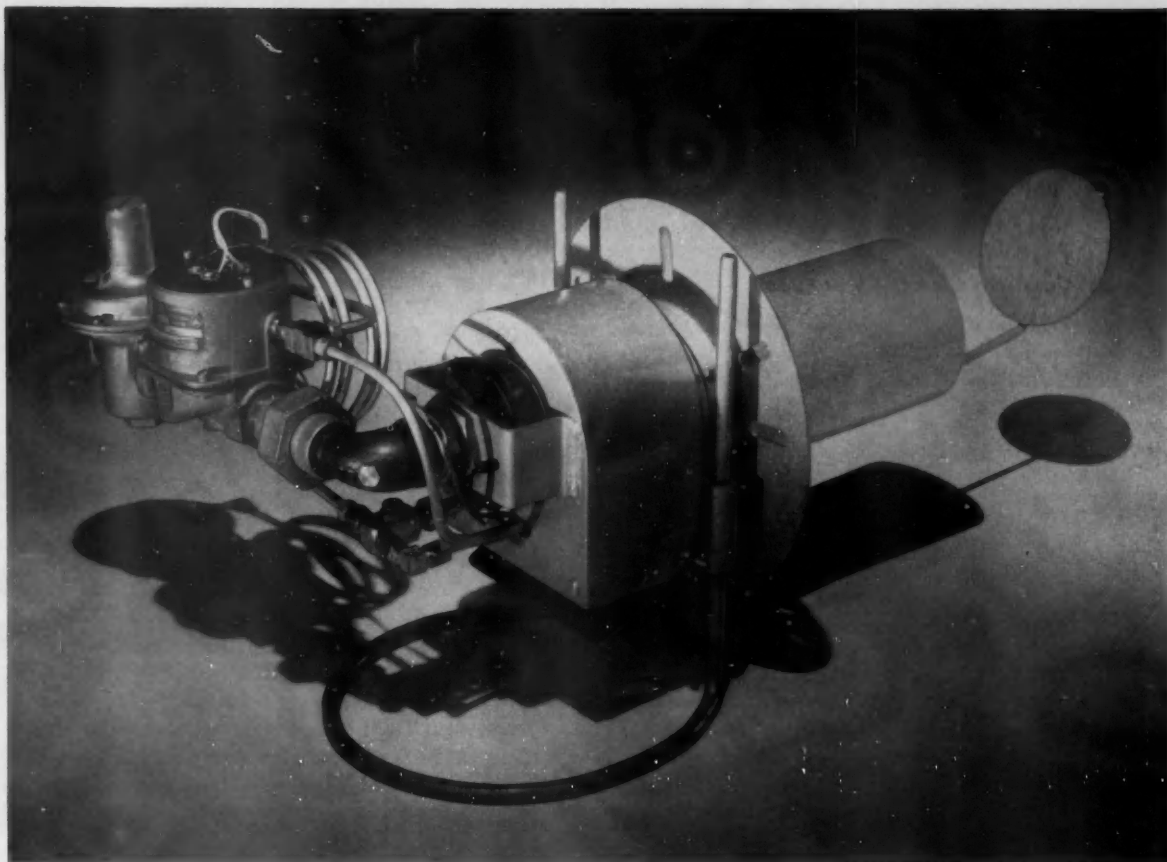
bars small birds from entering the vent outlet and provides a filter for twigs, leaves, paper and other debris. Unit is in 3 to 8 in. diameters. Vertical side shields prevent backdrafts and protect interior vent systems from rain, snow and ice.

Embossed Sheet Metal

FOUR PATTERNS added to line of "Rigid-Tex" sheet metal—*Rigidized Metals Corp., Dept. AA, 699 Ohio St., Buffalo 3, N. Y.* Shadow box pattern 1-SB has maximum width of 7¾ in.; maximum pattern depth of 0.012 in. Shadow box pattern 2-SB has same motif as 1-SB but maximum width is 6 in. for trimming applications. Basket weave pattern 1-BW is in maximum width of 7 in., maximum pattern depth of 0.025 in. Hammered pattern 2-HM has maximum pattern depth of 0.008 in. and is produced in maximum 7¾ in. width. Alternating concave and convex pattern 1-ACC is in maximum width of 36 in.; maximum pattern depth is 0.100 in., designed for curtain wall and other large surface applications. All three dimensional patterns are produced in stainless steel, aluminum and other metals.

'Permanent' Air Filter

"ELECTRONAIRE" electrostatic air filter said to be made of materials designed to resist acids, etc. — *Hadley Products Co., Inc., Dept. AA, Marietta, O.* Frames are 0.032 aluminum; grilles are 0.025 expanded aluminum; interior construction is of a spring-tension arrangement. Filter pack is of thermo-plastic material said to provide high electrostatic attraction for dust, dirt and pollens. Filters are cleaned rather than re-



This New Burner cuts installation costs

Dealers tell us that they look for three things when choosing a gas conversion burner . . . initial cost, ease of installation, and service requirements. We've tried to make GUN-HEAT superior to all other burners on these three points. We can prove it's the lowest priced burner in the field and our specification sheets will show you it's service superiority — so let's take a look at how it's installed.

In the first place, GUN-HEAT

is shipped completely assembled, saving your installer valuable time. With its 4 1/8-inch diameter, it fits any oil burner opening and the universal mounting flange bolts right onto the oil burner mount.

A floor stand is supplied as shown above where flange mounting is not feasible or where the burner is used in a coal furnace or boiler.

To eliminate the necessity of constructing a combustion chamber, GUN-HEAT has a flame deflector

made of the same stainless steel used in jet engines. And it's scientifically adjusted to insure best possible combustion in a confined area.

Once the burner's in position, it's a simple matter to hook up. Since primary and secondary air shutters are both out in the open it's easy to make final adjustment and locking.

Check the other features on GUN-HEAT yourself. *Write for specifications and prices today to the address below.*

THE



MANUFACTURING COMPANY
GAS AND OIL BURNER DIVISION

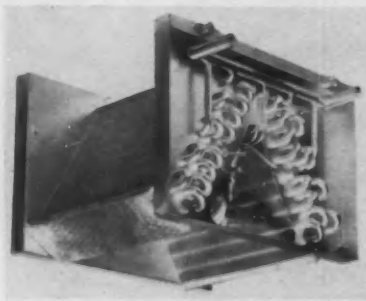
1052 East 134th Street, Cleveland 10, Ohio • GL 1-2666

equipment developments (Continued)

placed. Plain water or mild detergent will clean filters. Pack will not rot or deteriorate, is impervious to acids, liquids, gases and chemicals, and has permanent electrostatic charge, the company states. Filters are 1 and 1/2 in. thicknesses and in all standard dimensions.

Dual Cooling Coil for Plenum

RESIDENTIAL DUAL cooling coil assembly for plenum installation — *Tubenfin Coil Co., Dept. AA, 8037 Hartford St., Houston, Tex.* "V" type coil is available in



2, 3, and 5 ton capacities for use with remote air cooled condensing units. Each coil is fed by two liquid distributor lines from the expansion valve. Equalizer line

balances liquid valve to maintain fully active coil sections. Suction line header has two connections with each coil providing easy access for low pressure vapors to suction line. Drain pan under each coil has separate drain connection for rapid condensate removal, the company reports.

Blower-Condenser Units

"BC" MODEL blower condensers in capacities to 20 tons — *Bush Mfg. Co., Dept. AA, 179 South St., West Hartford 10, Conn.* Units feature inner-fin coil construction, all steel cases with rust-resistant finish, according to the manufacturer. Units are arranged with either blower fan for indoor installations or propeller fan as desired.

Central Station Air Conditioners

CABINET air conditioning units designed to distribute air from central heating systems in stores and shops — *Worthington Corp., Dept. AA, Harrison, N. J.* Units can be installed vertically or horizontally. Featured is 3 1/2 in. variation in motor base adjustment for correct belt tension. Locking nut holds base in the proper position. Unit consists of three basic sections: base section, fan section and coil section with a drip pan. Sizes range upward from 1 1/2 tons capacity. Other features are permanently lubricated fan shaft ball

Conductor L. Bow says:

REDUCE INSTALLATION TIME
WITH CINCINNATI ELBOWS—THEY'RE
SHAPED AND TAPERED TO FIT EASILY
INTO ALL STANDARD SIZE PIPE—
THEY'RE HOT-DIPPED IN ZINC...AFTER
FORMATION...TO STOP RAW-EDGE-RUST—
AVAILABLE IN ANY SIZE, GAUGE OR
METAL, INCLUDING COPPER, ALUM-
INUM, STAINLESS OR GALVANIZED
STEEL—ASK YOUR JOBBER!!

CINCINNATI ELBOW CO.

4730 MADISON ROAD • CINCINNATI 27, OHIO



Champs with a new power punch!

These new Task-Force light- and medium-duty jobs pack the biggest power punch in Chevrolet truck history with a modern V8 for every model and an automatic drive for every series!



High-powered V8's and 6's!

V8's are standard in medium-duty L.C.F. models, available at extra cost in any other lightweight or middleweight model you choose. Here's modern short-stroke power for increased engine life and lower operating costs! New Task-Force valve-in-head sixes, rated tops for economy, are more powerful than ever!

Two work-saving automatic drives!

Revolutionary new Powermatic, with 6 fully automatic forward speeds, available for most middleweight truck models! And you can get Hydra-Matic in all truck models rated up through 1½ tons! Both extra-cost options. See your Chevrolet dealer for details. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**CHEVROLET NEW CHEVROLET
TASK-FORCE TRUCKS**

Anything less is an old-fashioned truck!

MAKE YOUR RESERVATIONS TODAY FOR THE MOST PROFITABLE SHOW ON EARTH

with



Featuring these star attractions:

- futura designing — For any home in any state!
- precision engineering (in compliance with U.I. standards)
- ultra performance (guaranteed at A.S.R.E. and A.R.I. standards)
- Simplified "A-B-C" installation and servicing
- Shana-Air selling program

AIR-COOLED SAR and SAAC Series

Available in 2, 3
and 5 ton capacities



WATER-COOLED SW Series

Available in 2-3-4-6
ton capacities



PLUS these additional attractions:

- Shana "Duo" Units! • Combination Units!
- Commercial Units! • Winter Air Conditioners!



Shana Manufacturing, Inc.
188 West Randolph Street Chicago 1, Illinois
DEarborn 2-7030

Please send me additional information about SHANA-AIR air conditioning.

- ☐ Exclusive franchises still available. ☐ Cost of units.
☐ Description of all air conditioning units manufactured by Shana Manufacturing, Inc.

Name _____

Name of Firm _____

Address _____

City _____ Zone _____ State _____

Phone Number _____

☐ Dealer ☐ Distributor ☐ Manufacturers' Representative

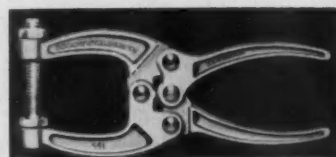
Others—Please Specify _____

equipment developments

bearings; choice of high or low velocity filters; rigid cross-break panels.

Portable Toggle Clamps

ALUMINUM AND forged steel portable toggle clamps—*Detroit Stamping Co., Dept. AA, 350 Midland Ave., Detroit 3.* Models 491 and 491-A, forged steel and aluminum, respectively, are heavy duty, 10 in. long models with narrow, deep throated jaws, for confined areas, for holding sheets and



for laminations. Models 441 and 441-A are 6 in. long, light duty models with smaller but wider and shorter jaws, designed for maximum hand clearance. Aluminum clamps are for overhead work and for welding applications where non-magnetic properties are desirable; forged steel has considerably higher holding pressure.

Roof Ventilator

"DIRECT DRIVE AIRLIFT" low design centrifugal fan unit designed especially for exhausting ventilation ducts serving relatively small spaces—*Swartwout Co., Dept. AA, 18511 Euclid Ave., Cleveland 12, O.* Made in five throat sizes, the unit is listed in a range of 29 capacity ratings suitable for other combinations according to static pressures involved. Unit is made entirely of aluminum and mounts on a low curb on the roof.

Galvanized Sheets, Coils

CONTINUOUS HOT-DIP galvanizing line said to be capable of producing 7000 to 8000 tons of galvanized sheet metal a month—*Jones & Laughlin Steel Corp., Dept. AA, 3 Gateway Center, Pittsburgh 30.* Line is able to produce 14 to 30 ga galvanized sheet; 20 to



Costs cut by stapling—every one of 'em!

Each of these duct and furnace parts has been stapled with a Bostitch S13C metal sticher. If you're in this business, you know how much an hour's assembly time is worth. Figure your savings:

In the plant where this photo was taken they used to spend *three to nine times* more assembly hours with riveting or bolting. Now there's no pilot drilling, no prepunching, no redrilling, no matching holes, no heading or tightening of rivets or bolts.

On parts they used to spot weld, the work goes twice as fast. No precleaning and removal of flash. No heat or warp. No electrodes to clean. No touch-up.

Instead, the sticher punches its own holes, forms and inserts the staple and clinches it in one-fifth of a second. Ask a Bostitch Economy Man for full information.

Fasten it better and faster with

**MAIL
NOW**

BOSTITCH
STAPLERS AND STAPLES

BOSTITCH, 944 Mechanic St., Westerly, R. I.

- ☐ Please have an Economy Man call on me
☐ Please send me special information about fastening sheet metal

We are presently using (please check)

- ☐ Riveting ☐ Bolting ☐ Spot Welding ☐ Crimping

Name

Company

Address

City Zone State



METALBESTOS

cuts installation costs without
cutting corners



Why waste time on makeshift fittings when Metalbestos can save far more in labor costs and assure a complaint-free job? This modern insulated gas venting travels light... couples gas-tight in seconds...

includes new round short lengths and exclusive 90° adjustable elbows to handle any installation without job-site cutting. It's safe to save with Metalbestos — and you'll finish more jobs for good in fewer man-hours.

For the latest Metalbestos catalog, see your jobber or write Dept. B-4



METALBESTOS DIVISION
WHITEN WALLACE COMPANY - ALBANY, CALIF.

Offices in Belmont and Glendale, Calif., Seattle, Denver, Dallas, Des Moines, Blue Springs, Mo., Minneapolis, Chicago, Atlanta, Akron, Louisville, Newark, Buffalo.
Stocked by principal jobbers in major cities. Factory warehouse in Atlanta, Dallas, Newark, Des Moines, Chicago, New Orleans, Akron.

equipment developments

48 in. widths (with coated edge); 60 to 168 in. lengths; full range of coatings; 20 and 24 in. (ID) and 48 in. (OD) maximum coil diameters; 12,000 lb maximum coil weights (with no welds) depending on width. Surface of the base metal is oxidized by passing strip through furnace; metal is annealed in another furnace; cooling furnace and zinc bath follow. Cooling rate is controlled in non-oxidizing atmosphere.

Gas Air Conditioner

"SUN VALLEY" 3 ton year 'round gas air conditioner which heats and cools with single heat exchanger and requires only one crate for shipping



—*Servel, Inc., Dept. AA, 119 Morton Ave., Evansville 20, Ind.* Single-coil, direct fired unit occupies 10.4 sq ft of floor space. Model FGA-96GN has 96,000 Btuh output, delivers maximum of 1600 cfm on cooling cycle with built-in bypass open; unit is suitable for average sized three bedroom home, according to the manufacturer.

Wall Fan for Attics

"FREE FLOATING" attic fan in 20 to 42 in. sizes with automatic aluminum wall shutters—*McLean Engineering Laboratories, Dept. AA, Box 228, Princeton, N. J.* Designed for wall installation, unit has rubber isolated bearings and motor which are mount-



TORIDHEET Model JC
Oil Burner with
Durable Multi-Jet Blender

Model JC Pressure-Atomizing
Oil Burners, Equipped with
Durable Multi-Jet Blenders,
Power these Fuel-Thrifty
TORIDHEET Furnaces



Model OGU
Oil-Fired Boiler



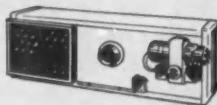
Model OGA-C
Counterflow Furnace



Model OGA-'Hi-Boy'
Furnace



Model OGA Oil-Fired
Winter Air Conditioner



Model OGA-40 Horizontal Furnace

TORIDHEET'S Durable Multi-Jet Blender

TORIDHEET'S new *Durable Multi-Jet Blender*, though of very simple design, is the ultimate in efficient blending of air with oil for complete combustion—no matter what percent of catalytic oil is used. TORIDHEET'S Multi-Jet principle provides outstanding fuel economy plus extreme quietness—with no pulsation in even the smallest heating units.



COMPLETE UNITS AND CONVERSION BURNERS—GAS OR OIL

Wall-Flame Oil Burners • Gun Burners • Wall Flame Boilers, Furnaces and Water Heaters • Gun
Fired Boilers and Furnaces • Gas Conversion Burners and Gas Fired Furnaces • Low-Boys
Hi-Boys • Counterflows • Comfort Cooling Equipment

SOME DESIRABLE DEALER FRANCHISES AVAILABLE
—YOUR INQUIRY IS INVITED

CLEVELAND
Toridheet
AUTOMATIC HEATING

Toridheet Division
CLEVELAND STEEL PRODUCTS
CORPORATION

16035 Brookpark Road • Cleveland 11, Ohio

Affiliated Canadian Manufacturer: Aero Tool Works Limited, Toronto, Ontario



CASH IN ON AIR COOLING JOBS that are...

- **TOO TOUGH FOR VENTILATION**
- **TOO BIG FOR REFRIGERATION**

*Ideal for laundries • foundries • dry cleaners • factories •
warehouses • florist shops • restaurants, etc.*

"Hopeless" cooling problems are easily and economically solved with PALM-AIRE or SNO-BREZE evaporative air coolers. Great volumes of filtered, cooled air clear out sweltering heat in large-area hot spots. Research *proves* that morale and working capacity go up as the temperature goes down... an installation soon pays for itself in startling production increases!

And best of all, top-quality Palm-Aire and Sno-Breze coolers are low in initial cost, operate for next-to-nothing!

Get in on the ground floor of the new idea in industrial cooling and cash in from the sale of coolers *plus* the highly profitable installation work. *Customers will flock to you when they hear you're installing low-cost air cooling systems that really do the job!*

Send in the coupon today for free descriptive literature!

THE TWO TOP NAMES IN EVAPORATIVE AIR COOLERS... BOTH MADE BY PALMER

Sno-Breze PALM-AIRE



CLIP AND MAIL THIS COUPON TODAY!

PALMER MANUFACTURING CORPORATION
Dept. 41, 2200 West Fillmore St.
Phoenix, Arizona

Yes! We'd like to cash in on the benefits of low-cost, large-volume air cooling. Please send details and free booklet.

NAME _____

COMPANY NAME _____

TYPE OF BUSINESS _____

STREET _____

CITY _____

ZONE _____ STATE _____

**FREE
BOOKLET--
MAIL COUPON
TODAY**

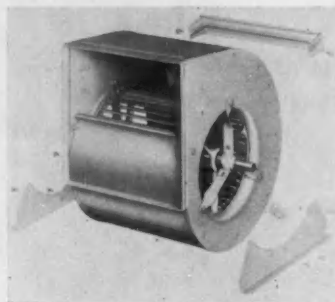


equipment developments

ed on flexible steel frame. Assembly is then rubber shock mounted to isolate it from venturi orifice panel which can be fastened to any surface. Venturi orifice is recessed in metal casing to facilitate flat surface installation in wall. Featured is heavy duty ball bearing fan shaft encased in rubber.

Four-Position Blower

"IM-PAK" BLOWER with interchangeable mounting which enables it to be switched to any of four positions while in production—Utility Fan Corp., Div. of Utility Appliance



Corp., Dept. AA, 911 E. 59th St., Los Angeles 1. Mounting package is designed to allow equipment manufacturers to keep inventories of blowers with unassembled parts to a minimum. The two housing supports and motor mount brackets are shipped unattached with all hardware needed; adjustment switches angle of discharge to any of four positions. Sealed ball bearings are standard; adjustable sleeve bearing mount for production line switches is available.

Evaporative Cooler

PORTABLE EVAPORATIVE cooler rated at 2000 fpm—Spitzka Mfg. Co., Dept. AA, 235 Colfax St., North Sacramento, Calif. Requiring no water connections, unit may be used wherever electrical current is available, the company states; brass and stainless steel pump recirculates water continuously. Unit can be rolled from room to room on ball bearing swivel



IF YOU HAVE A STAKE IN NEW CONSTRUCTION

anywhere in the 37 eastern states, Dodge Reports will tell you daily what's coming up, the man to see, what the job requires, when bids are due, who gets the contracts. They give you all the information you need to plan ahead... to pick and choose the jobs you want.

Whether you want *more* business, *better* business, or more time to handle what you have,

You can use **DODGE REPORTS** *with profit*

F. W. Dodge Corporation

Construction News Division
119 West 40th Street
New York 18, N. Y.

Dept. AA-562

Please let me see some typical Dodge Reports for my area. I am interested in:

- ☐ House Construction
- ☐ General Construction
- ☐ Engineering Projects

Area _____

NAME _____

COMPANY _____

ADDRESS _____

3 ways to clinch that Sheet Metal Contract...

and

INCREASE YOUR PROFIT MARGIN

① STOP MAKING FLEXIBLE CONNECTORS PIECE-BY-PIECE

Attaching metal to fabric in your shop is troublesome and expensive. Use DURO-METAL-FAB and ECON-O-FAB NOW to reduce connector cost.

DURO-METAL-FAB and ECON-O-FAB are preassembled metal-to-fabric-to-metal, saving expense of attaching metal to fabric. Exclusive Double-Loc Seam prevents fabric from being cut or pulling out.

DURO-METAL-FAB and ECON-O-FAB are the only products with 3" and 4" metal dimensions—giving you the metal dimensions you need to work most efficiently.

DURO-METAL-FAB—for industrial ductwork. 24 & 26 ga. ECON-O-FAB—lighter gauge, lower cost, for residential ductwork. Not the cheapest, but, by far the least expensive.

Available with government specification canvas, asbestos and neoprene coated fiberglass—50 ft. and 100 ft. rolls.



(You need these dimensions to make lowest cost connectors)



NEVA BIND DURO-BLADE KIT
(Provides everything except damper frame, blades and rod)

② MAKE YOUR OWN NON-BINDING LOUVER DAMPERS

You can use less skilled, lower cost labor to make absolutely non-binding louver dampers with the **NEVA BIND**

DURO-BLADE KIT—Precision Engineered Damper Hardware.

That's right! You make the frame and blades. The **NEVA BIND DURO-BLADE KIT'S** unique 4-way adjustability compensates for all small inaccuracies in hardware mounting or those in blade or frame construction—the main cause of binding. Result—dampers can be assembled with little care and no alignment troubles. The cost for Neva Bind Duro-Blade Kits—no more than old type kits.

③ STOP MAKING YOUR OWN ROUND DAMPERS

Stop wasting high priced labor making round dampers in your shop. The **JEFFY DAMPER** comes completely prefabricated—ready for immediate installation in ductwork. Costs far less than comparable homemade dampers.

Famous Jeffy Regulator is preattached to galvanized iron blade. Two styles: **JDS** with Spring-Loc bearing; **JD** without Spring-Loc. Pipe sizes 4", 5", 6", 7", 8", 9".

JEFFY DAMPER



DURO-DYNE CORPORATION

Distributors throughout the United States and Canada

800-B Third Ave.

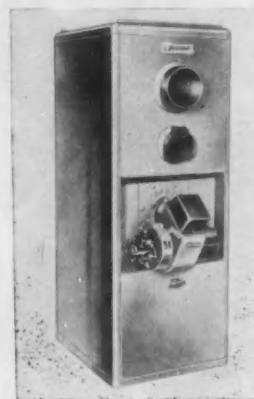
New Hyde Park, N. Y.

equipment developments

casters. Model 1670 features 1/15 hp motor, double-wheel blower, water level indicator and adjustable louvers on outlet. Dimensions are 14×17¾×22 in.; shipping weight is 45 lb.

Oil Fired Furnaces

OIL FIRED highboy, lowboy and counterflow furnaces each in 85,000, 102,000 and 135,000 Btuh capacities—Janitrol Heating and Air Conditioning Div., Dept. AA, Surface Com-



bustion Corp., 400 Dublin Ave., Columbus 16, O. Combustion chamber and heat radiator assembly feature 14 ga welded steel construction; bolted and gasketed joints are eliminated; radiator size is increased; refractory lining muffles combustion noises. Unit burns No. 2 fuel oil. Blower and motor "float" on live rubber cushions; blower is dynamically balanced.

Room Air Conditioners

Two ROOM AIR conditioners that require only 7½ amp current—York Corp., Dept. AA, Roosevelt Ave., York, Pa. Single dial controls fan motor, cooling and dehumidifying. Outside air control dial regulates amount of outside air brought into the room; controls are located on front of unit. "Power-Saver" models can be mounted flush with drapes or flush with outside of building. "Dictate-Air Grille" reduces draft, directs air to any part of room.

(More equipment news on page 152)

This roofer sold

8 MILES OF TERNE GUTTER

To
Project Builders
Last Year



Dan Burrows, Limbach representative, talks to William H. Collins, Director of Purchases for Builder Edward M. Ryan, Inc., about one of their typical installations of Follansbee Terne.

Limbach Company, Inc., Pittsburgh Mechanical and Specialty Contractors, sold more than 8 miles of Follansbee Terne gutter to Project Builders in and around Pittsburgh, Pa. last year.

They sold Terne in preference to other materials because Terne holds paint and can be painted immediately with no special treatment necessary; and because Terne gutters last longer than other types. Terne, the *proven* metal, is easy to sell.

You'll find that by selling Terne, you'll be able

to make more profit too. Tell your builder customers about Terne's big advantages. Show them that they can offer their customers a lot more quality and serviceability for little money.

And while you're at it, why not sell complete roofs of Terne for better homes? In addition to the standing seam and batten seam installations, there is the new Bermuda roof with the horizontal shadow line. We'll be happy to send you a sketch showing how this attractive, new roof is installed.



Follansbee Terne is carried in stock by
Leading Sheet Metal Distributors Everywhere

FOLLANSBEE

STEEL CORPORATION

FOLLANSBEE, WEST VIRGINIA

Cold Rolled Strip • Terne Roll Roofing • Polished Blue Sheets and Coils

Sales Offices in Principal Cities

Dehumidifier-Heating Unit

"IMPERIAL" DEHUMIDIFIER which circulates and heats as well as removing moisture from the air — *Mitchell Mfg. Co., Div., Cory Corp., Dept., AA, 2525 N. Cly-*

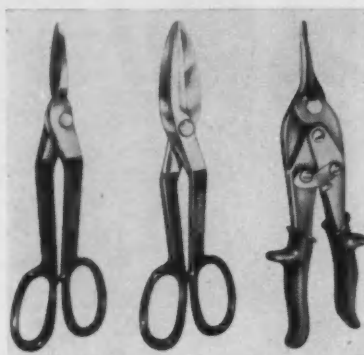


born Ave., Chicago. "humidity dial" shows humidity in room and tells when to turn unit on or off. Other features are four position switch for circulation, dehumidification, heating, and "off"; air dryer said to remove 2 to 3 gal. of water from a room in 24 hr; supplementary 1000 watt heating coil; high speed circulating fan.

The 65 lb unit removes approximately 17 to 25 pints of water per day in a closed area up to 10,000 cu ft, the company states. Heating unit is said to deliver 3410 Btuh; recirculation of air is rated at 165 cfm. "Economy" dehumidifier unit has same moisture removal rate; both are powered by 1/6 hp compressor motors.

Hand Snips and Shears

THREE COMPOUND leverage shears for straight, right and left cuts; three straight snips; and three combination snips—*Niagara Machine & Tool Works, Dept.*



AA, 637-697 Northland Ave., Buffalo 11, N. Y. Shears have 52 serrations per in.; drop forged steel jaws are

Heating?
Cooling?
Air Conditioning?
Process?

**ASK THE
AEROFIN MAN**
*About Practical
Heat Exchange*



There is a competent Aero-fin heat-transfer engineer near you—qualified by intensive training and long experience to find the *right* answer to your own particular heat-exchange problem—and backed by the research and production facilities of the pioneers in light-weight extended surface.

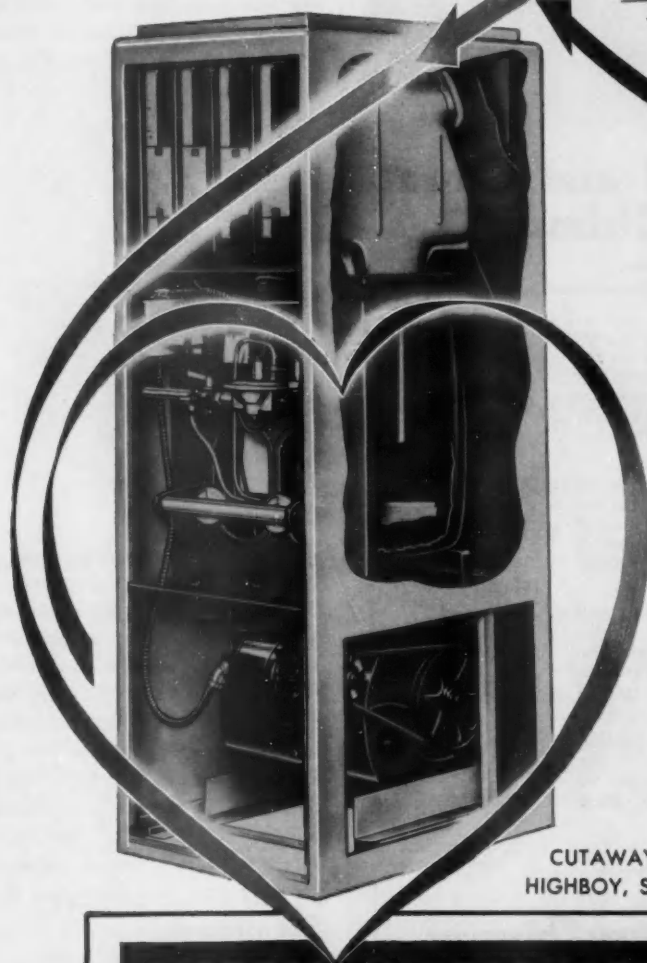
Ask the Aero-fin Man.

Aero-fin is sold only by manufacturers of nationally advertised fan system apparatus. List on request.

AEROFIN CORPORATION
101 Greenway Ave., Syracuse 1, N. Y.

Even distribution

*the heart of
your heating
comfort*



CUTAWAY VIEW OF RHEEM IMPERIAL
HIGHBOY, SHOWING MORRISON BLOWER

For many years it has been the privilege of Morrison to work with Rheem Manufacturing Co. in developing a blower assembly equal in quality to the high standards set by the Rheem furnaces.

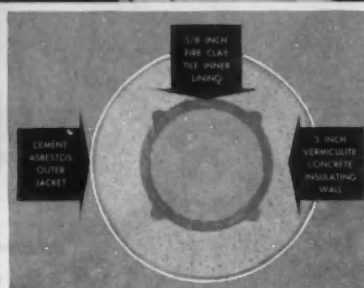
The result is a dependably even distribution of air — the "heart" of any Heating System.

Write Morrison for blower parts to meet your requirements.

MORRISON PRODUCTS INC. 16816 WATERLOO RD.
CLEVELAND 10, OHIO



Glenn Nallinger of Apex Heating points out recent Van-Packer installation made by the company. Van-Packer vents the furnace, incinerator and water heater safely and efficiently. Close-up of Van-Packer flue cross-section (right) shows genuine masonry construction.



"We tried them all and chose the Van-Packer Chimney"

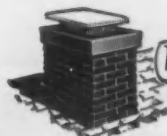
Howard Houchens,
Apex Heating Shop, Hammond, Ind.

"We install over 200 Van-Packer Chimneys a year and think they are the best packaged chimney on the market. The Van-Packer is completely safe even for high stack temperatures of incinerators." These are the words of Howard Houchens and Glenn Nallinger of Apex Heating Shop, leading Hammond, Indiana, heating contractors.

This safety is assured by permanent masonry of Van-Packer flue sections. Van-Packer keeps you in the profitable chimney business when incinerators rule out the use of most packaged chimneys. UL listed for all fuels, all home heating plants and incinerators; approved by major building codes.

Guaranteed greater draft of Van-Packer Chimney provides venting capacity for furnace, water heater and incinerator. In independent laboratory tests, the Van-Packer Packaged Masonry Chimney was proven to produce more draft than any other chimney or flue of the same size and height.

Immediately available from your local heating jobber, no job delays. Get the complete Van-Packer profit story. See "Chimneys — Prefabricated" in yellow pages of classified phone book, or write Van-Packer Corp. for Bulletin RS-1-11.



Van-Packer PACKAGED MASONRY Chimney

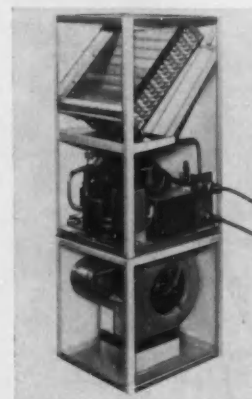
Van-Packer Corporation • Bettendorf, Iowa • Phone: Davenport 5-2621
World's Largest Manufacturer of Chimneys

equipment developments

curved to divert sheared metal. Pliable plastic hand grips have stop posts to prevent hand slippage and provide finger clearance. Straight snips, designed for long smooth cuts, are made of drop forged steel and heat treated to provide long lasting cutting edge. Combination snips are designed for intricate pattern and scroll work. Also made of drop forged steel, inner faces and "duck bill" jaws are sloped for cutting curves and irregular shapes.

Add-On Cooling Unit

AIR COOLED residential cooling unit designed for use with existing warm air heating systems, and three central cooling units — Richmond Radiator Co., Affil. Reynolds Metals Co., Dept.



AA, Box 111, Metuchen, N. J. "A" type evaporator in add-on unit may be placed in warm air plenum above or below furnace; flat evaporator may be installed in warm air supply duct. Central cooling line includes water cooled models in 2, 3, 4 and 6 tons and air cooled models in 2, 3 and 5 tons. Capacities range from 24,000 to 60,000 Btuh. Compressor is mounted on "floating" springs. Insulation is plastic coated; permanent air filter and filter frame are standard.

Green Air Filter

"AMER-GLAS" filter for air conditioning units, colored green for "cool



Installation moves right along because light-gauge Monel Roofing Sheet is easy to handle and work. Utility buildings on the N. Y. Thruway are protected by 25 ga. (.021") Monel nickel-

copper alloy gutters and leaders, and 24 ga. (.025") flashings. Fabricator: Columbia Cornice Co., Cambridge, Mass. Monel roofing is also used for buildings of New Jersey's Garden State Parkway.

Bid on profitable new roofing jobs

Monel being specified for many super-highway buildings

Performance of Monel* flashings, gutters, leaders, fascia and gravel stops makes this nickel-copper alloy a natural for parkway toll booths, gasoline stations, restaurants and service buildings of every type.

Arising nationwide along new super-highways and turnpikes . . . such buildings are made to order for light-gauge Monel Roofing Sheet. This nickel-copper alloy cuts, handles and installs in the usual ways. No special tools, techniques or skills.

What's more, the volume of new super-highway construction continues high. With no let-up in sight. And new roads mean a substantial number of new roofing prospects. Prospects who want the permanence of trouble-free protection that you can

give with light-gauge Monel Roofing Sheet.

Ride the growing trend to metal roofing. Send for your free copy of *Basic Application Data - Monel Roofing Sheet*. It recounts uses of Monel sheet, sums up characteristics and properties, installation methods, cost and how to specify. It lists suggested gauges of Monel Roofing Sheet for principal applications. Information to help you turn out work you'll want to show to prospects. Send us a post card, now. Ask for "Roofers' Booklet."

*Registered trademark

The International Nickel Company, Inc.
67 Wall Street New York 5, N. Y.



50,000,000 motor vehicles spur demands for super-highways such as the New York State Thruway. New roadways that mean new toll booths, new gas stations, new restaurants, motels and the like. All prospects for Monel Roofing Sheet. View above shows Tarrytown entrance to Toll Bridge across Hudson River on official opening day.



Nickel Alloys

Monel Roofing . . . "for the life of the building"

**"OTHER METHODS
RULED OUT..."
RAWL-DRIVES USED
FOR ANCHORING TO PLASTERED
BRICK FINISH...**



**ATLANTA 1000 UNIT
HOUSING PROJECT**

"Our company is in the process of completing a one thousand unit housing project here in your city.

At the suggestion of your man, we used your RAWL DRIVES for anchoring wooden shelving to plastered brick finish. The RAWL DRIVES were so satisfactory for this installation that I wanted to write you about my praise for the drive.

The carpenters put the shelves up in minimum time, and we were sure they were put up to stay when we used the Rawl Drive. Other methods of fastening were ruled out due to the expense and time involved.

I know the RAWL DRIVE was the best method of fastening because they are fast, economical and at the same time a sure hold."

Dave Messer

FARNSWORTH & CHAMBERS COMPANY, INCORPORATED

RAWL-DRIVE — Drives Like a Nail, Holds Like a Bolt

Write for Catalog, prices and free Dimensional Chart.

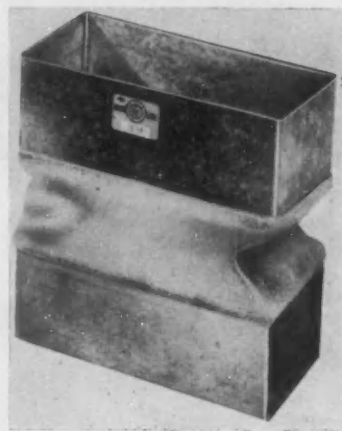


equipment developments

appearance"—American Air Filter Co., Inc., Dept. AA, 355 Central Ave., Louisville 8, Ky. Glass-media filter is available for all standard size air conditioning units, according to the manufacturer.

Flexible Duct Connector

"SILENT DUCT" material for fabricating flexible duct connectors for residential application — Elgen Mfg.



Co., Dept. AA, 41-34 39th St., Long Island City 4, N.Y. Packed flat in 25, 50 and 100 ft rolls in bench high dispenser carton, material is comprised of asbestos, preassembled one piece metal-to-material with permanent lock seams and 26 ga galvanized steel.

Sheet Metal-Paint Bond

"METAL BOND" clear coating designed to assure adhesion of paint films to smooth surfaces such as galvanized steel, sheet aluminum, and other materials—Wilbur & Williams Co., Dept. AA, 130 Lincoln St., Boston 35 (Brighton), Mass. Applied by brush or spray gun to metal surface, coating acts as an adhesive for paints and protective coatings normally used on these surfaces.

Window Air Conditioners

"CONSTELLATION" $\frac{3}{4}$ and 1 hp case-ment window air conditioners—Cory

For high quality roof drainage that's easy to sell...

USE ARMCO STAINLESS

High quality roof drainage spells long range economy on any home. And in high-quality roof drainage, the *best*, stainless steel, *costs least*. That's one reason why it's easier to sell.

Easier sales mean more jobs and *more profit for you*. With Armco Stainless Steel they're better jobs too.

Here are the Armco Stainless quality "extras" that sell customers and build your reputation:

Extra savings. Roof drainage of tough, durable stainless steel saves your customers *as much as 20%* over other quality roof drainage. What's more, it needs no maintenance. Properly installed, it should last as long as the building.

Extra beauty. This satin-smooth steel blends perfectly with all building materials and color schemes. It won't stain or discolor adjacent areas.

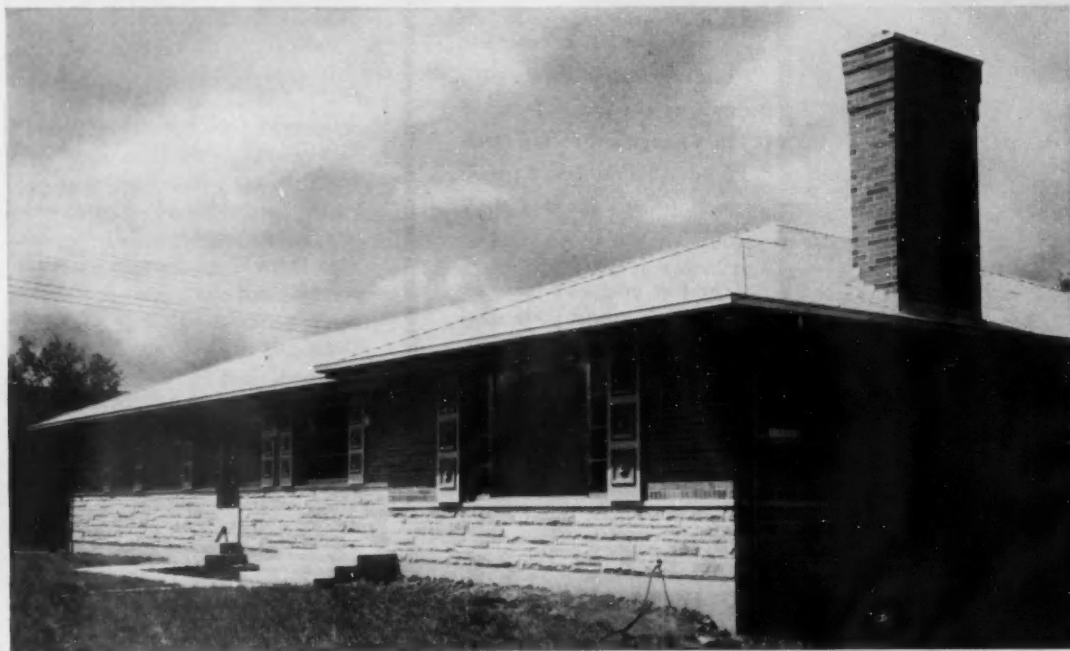
Extra strength. Rugged Armco Stainless easily withstands snow and ice loads, resists buckling from temperature

changes, fights abrasion at elbows and mitered joints.

SEE YOUR ARMCO DISTRIBUTOR

Your nearby Armco Distributor can supply the Armco Stainless Steel you need for high-quality roof drainage and roofing jobs.

To assure trouble-free service use stainless steel hangers, hooks, nails, rivets, screws, and strainers. For names of suppliers of stainless steel roof drainage parts and accessories, just write us at the address below.



ARMCO STEEL CORPORATION

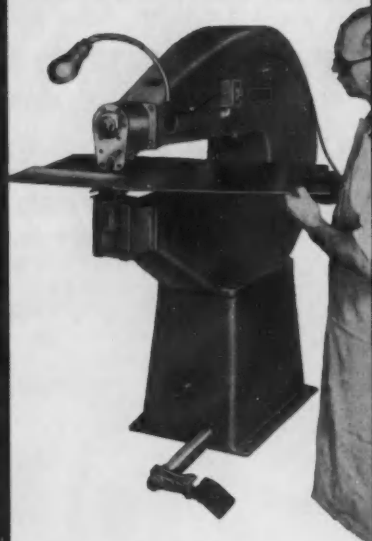
846 CURTIS STREET, MIDDLETOWN, OHIO



SHEFFIELD STEEL DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION

**FROM THE
BIGGEST
TO THE
SMALLEST**

**A Full Line
of Unishears
by Stanley**



U3610
Cuts up to 10 gauge



U218 — 4¾ lbs.
Cuts up to 18 gauge

Stanley offers a complete line of electric shears with cutting capacities from 18 to 6 gauge hot rolled steel. 6 portable models, 2 bench models and the big floor unit shown above.

For fast cuts . . . for easy handling, equip your shop with a Stanley Unishear. For complete details see your supplier or write Stanley Electric Tools, 574 Myrtle St., New Britain, Connecticut.



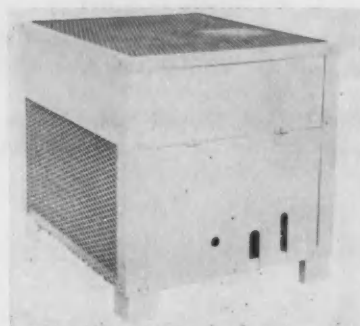
STANLEY

equipment developments

Corp., Dept. AA, 221 N. La Salle St., Chicago 1. Featured are eight functions of cooling, ventilation and recirculation; automatic thermostat; V-shaped condenser coils which cover full face width; two large filters; adjustable air diffusion; sound insulation; plastic inner cabinets and bonderized steel jackets. Power factor has been increased to meet electrical codes, according to the company.

Air Cooled Condensers

AIR COOLED CONDENSING units in 2, 3 and 5 ton sizes designed for areas with relatively low cooling loads



—Coleman Co., Inc., Dept. AA, St. Francis and Second St., Wichita 1, Kans. Units, which operate at DB temperature of the air, feature sealed compressors, copper coils with aluminum fins, hinged access door, water-proofed and undercoated cabinets. Smallest unit is 4×26½×23¼ in. The 3 and 5 hp models are available for single and for three phase current.

Air Conditioner Line

ADD-ON, companion, free standing, water and air cooled air conditioning units in 2, 3 and 5 ton capacities—Majestic Co., Inc., Dept. AA, 733 Erie St., Huntington, Ind. Air cooled models, in various arrangements, have interchangeable casing-evaporator and compressor-condenser units; water cooled units are also in three arrangements with same basic components. Cfm ratings range from 670 to 2000.

(More equipment news on page 160)

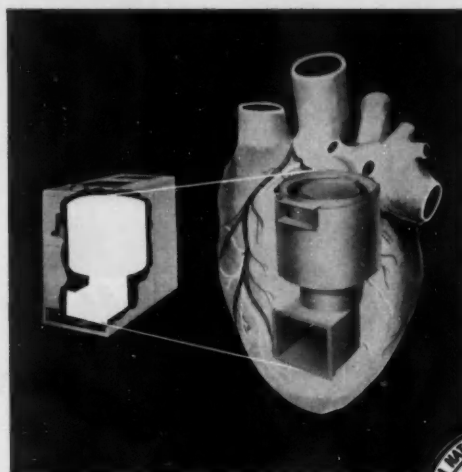
The Heart That Beats All **Competition!** **TEMCO's** ***Ceramic-Clad**** **HEAT EXCHANGER** *with written* **10 YEAR WARRANTY**

The heart of any heating unit is the heat exchanger.

That's why, when Temco first laid plans to move into the Central Heating field, a major segment of its research staff was given this assignment: study the heat exchangers in units now on the market, find out how they can be improved, give us something new, different, and better—so much better that people can tell the difference instantly.

Out of this scientific project came Temco's new, exclusive Ceramic-Clad—the "lifetime" porcelain enamel finish that is impervious to rust and will never burn out. All Temco Lo-Boys, Hi-Boys, Gravity Furnaces and Counter-Flo Furnaces are finished in Ceramic-Clad!

* Trade Mark Registration Pending



- ★ Pioneered and patented by Temco!
- ★ Similar to the finish used for jet aircraft combustion chambers!
- ★ Capable of withstanding temperatures far higher than the furnace will ever reach!

Plus these outstanding features . . .

- ★ Temco's exclusive Uni-Port Burner.
- ★ Silent operation.

*Turn to **TEMCO** for the best in gas central heating*

TEMCO, inc.

NASHVILLE 9, TENNESSEE

"Gas Heating Specialists for the Nation"



"THE COMPLETE LINE OF GAS HEATING EQUIPMENT"

ROOM HEATERS • FLOOR FURNACES • WALL HEATERS • UNIT HEATERS
WARM AIR FURNACES AND AIR CONDITIONING

Temco, Inc., Department B-907
Nashville 9, Tenn.

Please send me catalog and full details on Temco's Automatic Gas Wall Heaters.

Name

Firm Name

Address

City Zone State

11 Narrowly Escape Death by Monoxide

Fumes Are Backed Up By Cold

THIS ...
CAN HAPPEN
ANYWHERE!

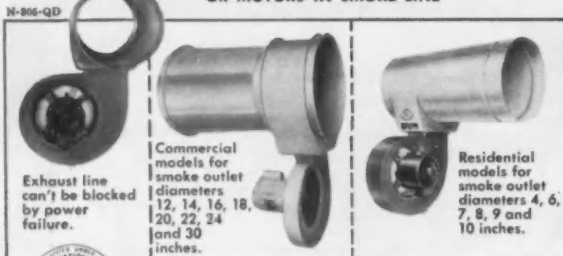
LET
Quickdraft
ASSURE YOU CONSTANT
DRAFT FOR
COMPLETE COMBUSTION

Because of natural draft troubles, more and more heating plants are operating at low efficiency and spilling combustion gases into buildings. Intermittent firing makes it all but impossible for ordinary chimneys to handle increased volumes of heavy and cooler by-products of combustion. Better fuels produce more carbon and sulphur dioxides (CO_2 is 55% and SO_2 is 255% heavier than air). Improved furnaces and boilers let less heat escape into chimneys.

Modern fuels and heating equipment need full and constant draft. Turned "on" and "off" automatically with the fire, Quickdraft power draft units prevent noxious concentrations of deadly fumes and dangerous accumulations of explosive gases from escaping into buildings.

Quickdraft cures heating-plant draft deficiencies . . . without wasting heat to "warm-up" the stack. With or without a chimney, it assures the constant draft required for burning all fuels efficiently and economically. It keeps chimneys dry and eliminates chattering, smoking and sooting. Write today for complete engineering data on the power draft unit that assures complete and economical combustion for health and safety.

POWER DRAFT WITHOUT FANS
OR MOTORS IN SMOKE LINE

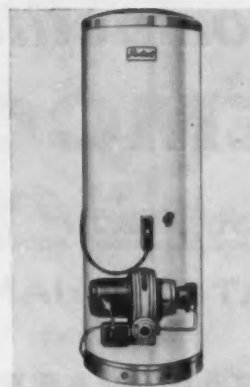


Quickdraft
COMPANY
Dueber-Hampden Bldg.
P. O. Box 87-D
Canton 1, Ohio

equipment developments (Continued)

Direct Oil Fired Water Heaters

MODELS GL-30 glass lined and CP-30 copper tank direct oil fired water heaters—Radiant Utilities Corp.,



Dept. AA, 8817 18th Ave., Brooklyn, N. Y. Glass lined unit is said to withstand hydrostatic pressure of 300 psi. Other design features are heavy duty glass fiber insulation and magnesium anode. Model CP-30 has solid copper tank encased in heavy gage steel jacket, is reported by the manufacturer to withstand hydrostatic pressure of 525 psi.

Hydraulic Press Brake

MODEL 18-48 12 ton hydraulically operated press brake with 48 in. length of bed and ram, and featuring stroke control design which permits presetting of length of stroke for each job — O'Neil-Irwin Mfg. Co., Dept. AA, 501 Eighth Ave., Lake City, Minn. Ram is linked to cam shaft which is turned by power being applied to rotary hydraulic cylinder. Cylinder's oscillating action has maximum movement of 270 deg. Stroke control selector can be adjusted without readjusting bed or die settings, the company reports. Ram works off bottom of the stroke. Sixty strokes per minute are obtained with 1/4 in. opening; full 1 1/2 in. opening gives 25 strokes per minute. Ram can be backed off at any point. Adjustable relief valve can be preset to apply only the maximum tonnage required to bend or punch.

Store Air Conditioners

PACKAGED AIR CONDITIONERS for store application, ranging in size from 3 to 20 tons—The Trane Co., Dept. AA, La Crosse, Wis. Features are outside air intake which bypasses compressor section; one piece plenum chamber, fan motor mounted out of air stream; condenser arranged for single set of piping connections; and complete field accessibility, the company reports.

**New Working Flexibility! New Ease of Handling
...Even on Toughest, Hard-To-Reach Jobs!**

SKIL 1/4" DRILL



...Model 75 with new Keyless Chuck



**Speeds Bit Changing
...Ends Key Fumbling!**

Speed Drilling Work on the Job or in the Shop!

Although lighter in weight and much easier for the workman to handle, SKIL Model 75 is actually 55% more powerful. Ideal for drilling tough, hard-to-reach jobs in a hurry. Increases worker output and speeds assembly operations. Matchless performance, top operating power, longer life under constant, rugged use.

Addition of high-torque Keyless Chuck now gives fresh working advantages to Model 75 Drill, already one of the most popular tools in the SKIL line.

SKIL
PORTABLE TOOLS

Made only by SKIL Corporation
formerly SKILSAW, Inc.
5033 Elston Avenue, Chicago 30, Illinois
3601 Dundas Street West, Toronto 9, Ontario
Factory Branches in All Leading Cities

When you buy a Drill, be sure it's a SKIL!

FREE!

**Demonstration and Free Trial
will prove SKIL is the answer
to your installation bottle-
necks! Send coupon today!**

Advantages that make SKIL the favorite!

- Greater working flexibility—with the new high-torque Keyless Chuck! Greater gripping power than keyed chucks.
- Motor 55% more powerful, yet lighter than previous model.
- Choice of 7 speeds (500 to 5,000 r.p.m.).
- Handy, safety-designed trigger lock for continuous operation—side location for easy use.
- All anti-friction bearings for longer drill life.
- Large inspection plate for routine maintenance.
- Comfortable "contour-grip" handle.

SKIL Corporation, Dept. AA-46
5033 Elston Avenue, Chicago 30, Illinois

- ☐ I would like a demonstration and trial—FREE!
☐ Please send me illustrated literature on SKIL Model 75.

NAME _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

new literature . . .

Uses of Sheet Copper

A 112 PAGE ILLUSTRATED MANUAL entitled Modern Sheet Copper Practices was prepared for the use of sheet metal workers, architects, specification writers and sheet metal designers. It contains a series of detail drawings in perspective showing various applications including curtain wall, flashing, roofing, etc. Suggested practices for correct uses of sheet copper are included as well as information on temper, gage, expansion and contraction factors. Request Manual C-1—*The American Brass Co., Dept. AA, 414 Meadow St., Waterbury 20, Conn.*

Table with Power Unit

FOLDER COVERS POWER TABLES designed to accommodate up to eight frequently used hand-crank machines. The power unit may be removed and used as a bench model, or bench power units may be purchased separately. The unit comprises a gear box, universal drive shaft, spring loaded extension sleeve, adapter coupling, locking pin, speed sheaves and three-position foot switch—*Roto-Table Co. Div., Dept. AA, 2605 E. Third St., Dayton 3, O.*

Automatic Heating Controls

CATALOG presents information on new oil, coal and electric heating controls as well as data on improved models for gas heating units. Also listed are the locations of five plants, seven warehouses and 42 factory branch offices operating throughout the U. S. and Canada—*General Controls Co., Dept. AA, Skokie, Ill. or 801 Allen Ave., Glendale 1, Calif.*

Packaged Fireplace-Chimney Units

PREFABRICATED METAL FIREPLACE and chimney units are described in an eight page illustrated circular. Chimney tops are available in three sizes and in plain or simulated brick finish. Construction details and dimensions are given in diagrams and line drawings, and photographs show typical applications—*The Majestic Co., Inc., Dept. AA, 733 Erie St., Huntington, Ind.*

Portable Power Tools

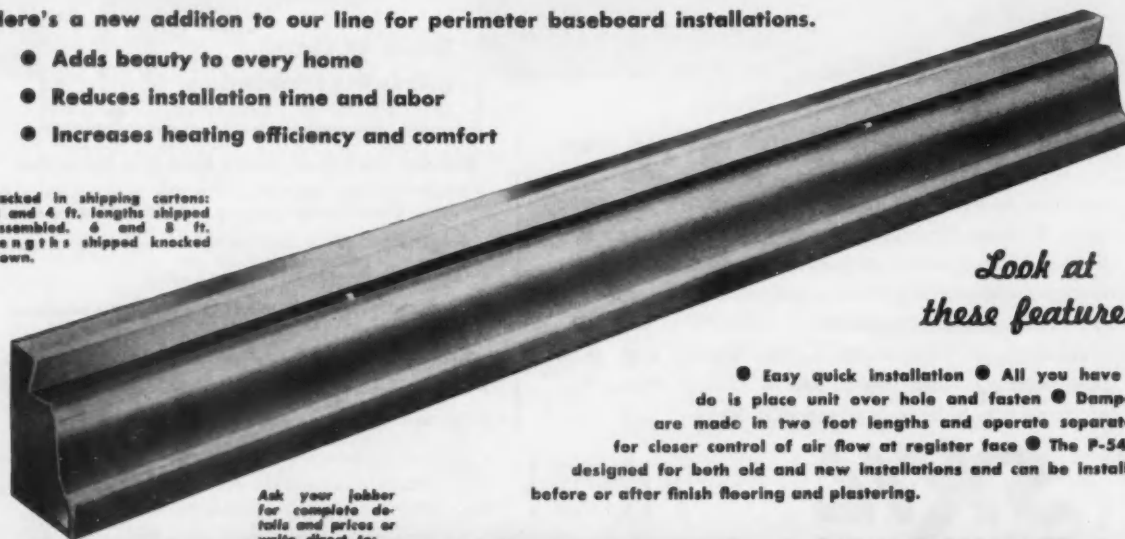
CATALOG OF INDUSTRIAL PORTABLE power tools lists more than 100 models which are illustrated with photographs and cutaways to show details of construction. It details the application and performance of portable

For greater heating efficiency and savings specify this NO. P-54 BASEBOARD DIFFUSER

Here's a new addition to our line for perimeter baseboard installations.

- Adds beauty to every home
- Reduces installation time and labor
- Increases heating efficiency and comfort

Packed in shipping cartons:
2 and 4 ft. lengths shipped
assembled. 6 and 8 ft.
lengths shipped knocked
down.



Ask your jobber
for complete de-
tails and prices or
write direct for

*Look at
these features:*

- Easy quick installation ● All you have to do is place unit over hole and fasten
- Dampers are made in two foot lengths and operate separately for closer control of air flow at register face
- The P-54 is designed for both old and new installations and can be installed before or after finish flooring and plastering.

THE A & A REGISTER COMPANY
8327 CLINTON RD. CLEVELAND 9, OHIO



Now . . . offer central heating comfort at "space heater" cost!

New Universal ends off-and-on heat blasts...guarantees your customers constant floor-to-ceiling comfort!

If there's a market for "space heaters" in your area, there's a many times bigger one for the revolutionary new Universal *Constant Comfort* Gas Heater. Because here, for the first time in 20 years, is an entirely new and efficient home heater principle that ends cold drafty floors and hot ceilings.

Constantly circulates warm, filtered air all over!

Just like the most costly modern central heating systems, the new Universal *Constant Comfort* Gas Heater continuously circulates warm, filtered air all over the rooms at all times. It automatically maintains even temperatures from floor to ceiling. Yet it actually costs *less* than some ordinary "space heaters," requires no additional installation and lowers fuel costs by re-circulating preheated ceiling air.

Act now on this big profit opportunity!

There's already a fast-growing demand for heaters in motels, house trailers and many other *new* locations. Now Universal's many revolutionary new features will open a huge new replacement market in homes, businesses and other locations where heaters are in use.

Don't delay. Rush the coupon for complete details today—plus news about the consistently powerful promotion program that will move Universal *Constant Comfort* Gas Heaters right off your floor!



the new
Universal
**CONSTANT
COMFORT
GAS HEATER**
for LP or city gas

Never before a
GUARANTEE
like this!

Cribben and Sexton Company guarantees the Universal *Constant Comfort* Gas Heater (when used in proper size for space to be heated) will out-perform any heater now sold in maintaining constantly comfortable temperatures from floor to ceiling.

Products of
Cribben & Sexton



Universal
Gas
Ranges

Universal
Automatic Gas
Clothes Dryers



Universal
Constant-Alt Gas
Incinerators

Cribben & Sexton Co., 700 N. Sacramento Blvd., Chicago 12, Ill.

Gentlemen: Please rush complete information about the special money-saving advantages of placing my Universal *Constant Comfort* Gas Heater order now.

your name _____

firm name _____

street address _____

city _____ zone _____ state _____

PUT OUR EXPERIENCE behind YOUR home AIR CONDITIONING



Many builders, through lack of personal experience with year-around air conditioning, hesitate to put it in their homes—but *not those who specify Majestic*. They know the full weight of Majestic's many years of "home comfort" experience stands firmly behind their ultra-modern 1956 units. In remodeling or in new construction, the contractor expects and gets all the benefits of Majestic's research and engineering.

Majestic 1956 LINE IS COMPLETE

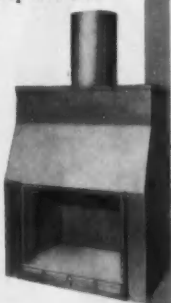
Whatever system you want—2, 3, or 5 ton self-contained water-cooled units or remote air-cooled models, in matching twin units or for add-on installations—Majestic has it in the 1956 line. For only a very few dollars, a Majestic Furnace installation can be equipped with a remote-system evaporator cabinet, ready for "the works" whenever the home owner decides on all-season air conditioning.

SLASH Chimney and Fireplace COSTS



Majestic also makes the revolutionary metal Thulman Chimney that cuts erection costs to a minimum, and Thulman Fireplace, the complete fireplace and chimney that needs *no masonry*. Both have simulated red-brick top housings. Both are U.L.-listed for zero clearance installation in homes to two-stories high with or without basement.

Call your nearest
Majestic Dealer,
or write today



The **Majestic** Co., Inc.

394 Erie Street

Huntington, Indiana

new literature

(Continued)

and radial saws; drills, drivers and nut runners; belt, oscillating and disc sanders; portable and bench grinders, and valve seat grinders, refacers and polishers. Also included is a description of the company's free advisory service on specific cutting, drilling and finishing problems—*Skil Corp., Dept. AA, 5033 Elston Ave., Chicago 30*

Heating Controls

BULLETIN NR-26 describes the use of automatic time controls with oil burners, gas units and stokers. Standard timer applications are listed together with the type of time control required for each. A brief description of the switch action upon the temperature control is given for each application. A section devoted to writing diagrams accompanies the suggested uses. Control of various types of thermostats singly and in combination is illustrated—*International Register Co., Dept. AA, 2620 W. Washington Blvd., Chicago 12*.

Diffusers

A SEVEN-FOLD ENVELOPE STUFFER presents information on floor, ceiling, wall and baseboard diffusers. Included are smoke test photos and details of the induced aspirating effect of the diffusers—*Lima Register Co., Dept. AA., 651 N. Baxter St., Lima, O.*

Hand Tools for Sheet Metal Workers

NINE HAND TOOLS for the sheet metal worker are introduced in Bulletin 78. They are three compound leverage shears (for straight, right and left cuts), three straight snips and three combination snips. Also described and illustrated are bench shears, hammers, mallets, bending machine, roofing folder, roofing double seamer, and others—*Niagara Machine & Tool Works, Dept. AA, 683 Northland Ave., Buffalo 11, N. Y.*

Home Insulation

ILLUSTRATED PAMPHLET (WHN-10) shows how to install reflective faced glass fiber insulation in ceilings and walls. It also contains information on how the insulation provides protection at low cost and explains which thickness should be used to meet individual requirements—*L. O. F Glass Fibers Co., Dept. AA 1810 Madison Ave., Toledo, O.*

Direct Fired Heaters

BROCHURE describes direct fired heaters using light or heavy oils, gas or combination fuels. Six models and 66 sizes are described, ranging in capacity from 200,

a Report to Dealers

on the advanced-design

CONCO MODULUX

year-'round



air conditioner

At the recent National Association of Home Builders exhibition, leading builders previewed what is unquestionably today's most advanced system of indoor climate control—the Conco Modulux year-round air conditioner. Many said that this new unit seemed ideally suited to their fine-home needs. Here, briefly, are outlined some of the features they liked.

Unmatched Heating Performance

The Conco Modulux provides more perfect temperature control, in any weather. It has eliminated a moderate-weather problem known to all heating dealers—that of uneven room temperatures with cool air settling along the floor when the blower shuts off. The Conco Modulux provides continuous air circulation, made possible by a special "face and by-pass" damper system (illustrated right). This system, combined with outdoor control of burner operation, provides continuous circulation of modulated air, blended to precisely the temperature required to match the home's changing rate of heat loss—practically from minute to minute. This continuous air circulation also improves humidifier operation.

Unmatched Cooling Performance

The face and by-pass damper system also means greater summer comfort. It provides steady cooling and dehumidification in any weather—extremely hot, normal, or mild. As in

heating, dealers have known a moderate-weather cooling problem—that of poor dehumidification during periods when the compressor is off. With continuous blower operation, conventional systems allow the air to pick up moisture during this "off" period. The Modulux not only provides longer "on" periods but by-passes all air around the evaporator when the compressor is off.

Unmatched Air Cleaning

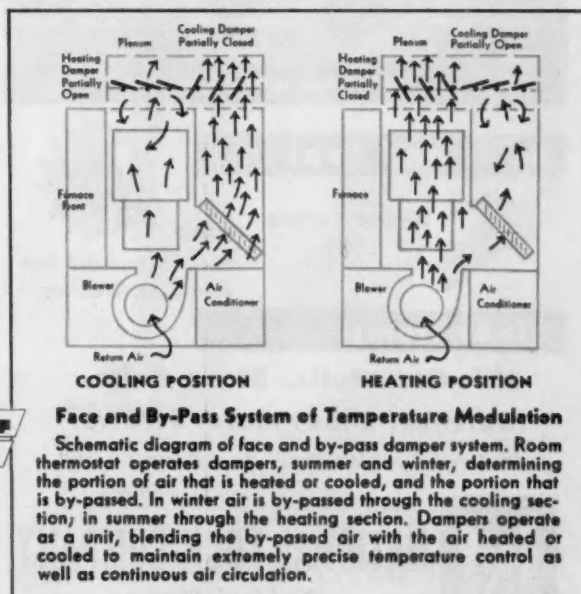
The use of an electro-static air filter keeps household cleaning chores to a minimum. The filter is virtually 100% efficient in the removal of dust, dirt and pollen.

Write for your literature on the new Conco Modulux. There is a market for this deluxe year-round air conditioner in your community.



CONCO ENGINEERING WORKS
DIVISION OF H. D. CONKEY & COMPANY, MENDOTA, ILL.

*Manufacturers of a complete line
of quality heating and air conditioning equipment*



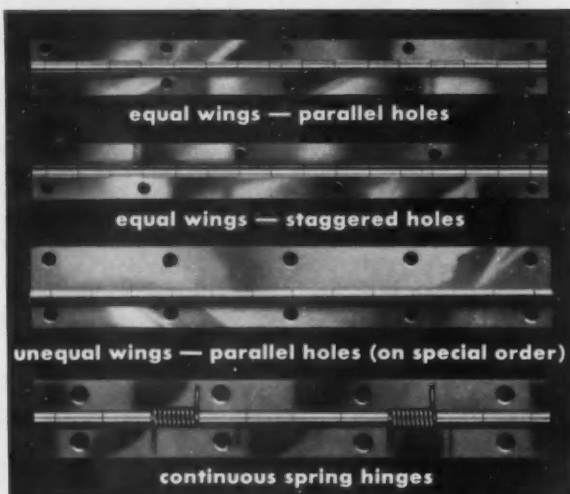
AFFILIATES: CONCO BUILDING PRODUCTS, INC. - BRICK, TILE, STONE — CONCO MATERIAL HANDLING DIV. - CRANES, HOISTS

NATIONAL LOCK HARDWARE

for Metal Applications
for use by manufacturers of
Humidifiers • Oil Burners
Air Conditioning Equipment
Gas Heating Units • Stokers
Space Heating Units

continuous hinges

equal and unequal wings . . . $\frac{3}{4}$ " to $3\frac{1}{2}$ " widths . . .
up to 72" lengths . . . with and without holes . . .
available in steel, brass, monel metal, aluminum



Sems and Keps



Thread-Cutting
SEMS



KEPS
Pre-Assembled Nut
and Lock Washer

other items

Handles, Pulls, Stove Bolts,
Catches, Sheet Metal Screws

write for complete information . . . Buy "all from 1 source"



NATIONAL LOCK COMPANY

Rockford, Illinois

new literature

(Continued)

000 to 2,000,000 Btu. The heaters are self-contained units, completely wired and flame tested at the factory—*National Heater Co., Dept. AA, 2180 Cleora Ave., St. Paul 4, Minn.*

Year 'Round Unit With Gas Furnace

BULLETIN C-1100-S100A-P gives dimensions and operating data for year 'round air conditioner with gas fired furnace. Available in 2 and 3 ton sizes, the units provide winter heating and summer cooling and feature an automatic temperature control. Other features include flexibility (the unit can be installed in basement, garage or utility closet), accessibility of operating parts, removable cooling section and corrosion-resistant heat exchanger—*Worthington Corp., Dept. AA, Harrison, N. J.*

Proportional Air Mixing Control

LITERATURE describes attenuator-diffuser unit designed to provide close control in high velocity air conditioning systems. The temperature is changed by mixing warm and cold air supplied from a pair of ducts and discharging the resultant mixture in the occupied areas. According to the company, the unit does this without changing the volume of air supply and thus keeps areas at high comfort levels by maintaining the same air flow pattern and the same percentage of outside air at all times. Temperature may be regulated by manual control, remote-manual control, or automatic room thermostats—*Anemostat Corp. of America, Dept. AA, 10 E. 39th St., New York 16.*

Records Retention in Small Business

THE PROBLEM of retaining business records in a small business where space is limited is discussed in No. 70 of Management Aids for Small Manufacturers. Listed as the basic factors to consider in a records retention schedule are legal requirements, administrative requirements, historical requirements, and administrative discretion. The following typical record groups are discussed and factors to watch in setting a retention period for each type are outlined: Accounting, General; Accounts Payable; Accounts Receivable; Legal; Payroll; Personnel; Production; Purchasing; Real Estate; Sales; Secretary; Tax; and Traffic—*Small Business Administration, Washington 25.*

Sound Absorbers for Cooling Systems

CATALOG describes "Q-Duct" silencing system for air conditioning and ventilating installations. The units are prefabricated and are available in over 148 sizes to fit various installations—*Industrial Acoustics Co., Inc., Dept. AA, 341 Jackson Ave., New York 54.*

for
SPECIFICATION
and
BUYING
INFORMATION

Use your complete, up-to-date

JANUARY DIRECTORY ISSUE

Your job will be a lot easier if you'll keep the January Directory issue of American Artisan constantly available for handy reference. It's one of your most valuable tools — one which will save you many hours of looking up the products you need for your various jobs. It's the ONE complete, up-to-date, readily accessible source of product information on who makes furnaces, snips, controls, etc., you need — and where they're located. They're identified by trade names, too. EVERY product is listed, alphabetically arranged and printed on a distinctive yellow stock for easy reading and reference.

Keep it handy . . . the time you save with it can be used to advantage in other ways.

. . . here's what other contractors and dealers have to say . . .

"Your Directory issue is an excellent buyers' guide. We use it a great many times during the course of the year."

"We find both Directory and Advertising Section helpful. The advertising gives us the product details we need."

"Your directory stays in this office until the next January issue comes along. Numerous times we refer to it."

"In our work, we make use of your Directory time and time again. Our reference file would not be complete without it."

REMEMBER — EVERY product is right at your fingertips

AMERICAN ARTISAN
6 North Michigan Ave. Chicago 2, Ill.

AMERICAN ARTISAN, APRIL 1956

F. Dieckmann
TRADE MARK

Conductor Elbows - Conductor Shoes

Made in angles from 10 to 90 degrees

"An Angle For Every Obstacle"



Plain Round



Round Corrugated



Square Corrugated
Style "A"



Square Corrugated
Style "B"

ALWAYS
UNIFORM
IN
SIZE
AND
ANGLE
OF
SIZES
1"
TO
6"

Made in 28, 26 and 24 gauge steel hot dipped galvanized after formation. Also Copper, Aluminum and Stainless Steel.

Catalog Available — Ask Your Jobber

THE FERDINAND DIECKMANN CO.

Established 1871

Cincinnati 22, Ohio

Big Sales Possibilities and Extra Profit - in **REPLACEMENT BUSINESS**

**Mr. Dealer,
Here is an
answer to your
Pulley & Belt
Problems**

Zatko
**ONE PIECE
Stamped
Steel Pulleys**

ONE PIECE
—for Greater
Strength
—for Longer
Wear
—for Lower
Cost

Zatko Quality
Pulleys match-
ed with Zatko
Quality Belts
offer a lot of
extra **PROFIT**
for YOU.



**SEE YOUR
WHOLESALE**



or write for
particulars of
the unusual
sales oppor-
tunities.

**FOR BIG SALES and LONG PROFITS —
Act Today**

Replacement Parts Inc.
22408 Lake Shore Blvd. Euclid 23, Ohio

we hear that

► **RESIDENTIAL** air conditioning was featured at The Peerless Corp.'s third annual national sales conference for dealers and jobbers of "Peerless" and "Round Oak" heating and air conditioning equipment, held in Indianapolis last month. New 2, 3 and 5 ton air cooled condensing units and new 3 hp single phase and 5 hp single or three phase air-to-air heat pumps were introduced, a tour of the plant included a visit to the new air conditioning section to see the units in production, and actual classes were held on the refrigerant charging procedure for the remote units. Informative talks by company executives and outside speakers covered research, heating and air conditioning fundamentals, features of the company's equipment, potential markets, heat pump applications, dealer advertising, sales promotion, and selling. In closing the conference, Frank Mutz announced that, because of the increased interest in air conditioning, the company name had been changed from Peerless Furnace & Foundry, Inc., to The Peerless Corp.

► **MARBLE HEATING CO.**, Marble, Minn. is now owned and operated by Warren Mortenson. A. O. LaSalla, former owner, has joined the Girard Steel Supply Co. as area representative.

► **JOSEPH LIVI**, credit manager for the Janitrol Heating and Air Conditioning Div., Surface Combustion Corp., recently served as panelist and speaker at two state conventions of heating and air conditioning associations. He participated in a panel discussion pertaining to the business problems of the heating and cooling equipment dealer in today's competitive market at the convention of the Sheet Metal and Roofing Contractors' Association of Minnesota, and also spoke at the convention of the Ohio Sheet Metal Contractors' Association. His talk at the latter meeting was What You Should Know About Your Business.

how **PREMIER** furnace cleaners
cut your labor-time costs



Labor-time takes 90% of your maintenance cleaning costs. **PREMIER** saves you money because it reduces that time. Here's how:

1 You spend less time on each job because of special pleated filter design. The filters in **PREMIER** machines are 3 times larger than others . . . 3 times more working-filter area than other makes. This saves time . . . boosts profit of each job. Notice this machine is half the size of ordinary cleaners, yet holds a full half bushel.

2 **PREMIER** equipment is practically maintenance-free because their special built motors are well ventilated to run cooler. Extra air flow over the motor is possible also by the exclusive "3-times larger" filter. This means longer motor life.

3 All models are completely equipped with standard attachments. Special tools for out-of-the-ordinary jobs are also available.

PREMIER YOUR BEST BUY

4 Low initial cost due to high volume of sales. Fine engineering design born of years of experience have made **PREMIER** machines the preference of cleaning men.

5 Listed by Underwriters' Laboratories and Canadian Standard Ass'n.

"**OLD RELIABLE**"—first and most famous Premier furnace and air-conditioning cleaner (P-908F) with external filter bag for "hot jobs" now also is available with new 3-times-larger internal filter. For information on all Premier furnace and air conditioning cleaners, write today for Folder FB14.



PREMIER COMPANY
Dept. 406

755 Woodlawn Ave., St. Paul 1, Minnesota
35 Gerrard St. West, Toronto, Canada

we hear that

(Continued)

► DELBROOK Ventilating Co. recently conducted a study of air diffusion through luminous ceilings for The Wakefield Co. The research room measured 18 ft by 12 ft, 9 in. and had a suspended ceiling height of 10 ft, 4 in. The plenum was from 18 to 24 in. deep. The performance of the air diffusion system was studied for air quantities from 1 to 4 cfm per sq ft. Among the results reported by the company are: 1) grilles were not found to be significant at the duct opening in the plenum when six outlets were used in the room; 2) a random positioning of the corrugated plastic on its supporting acoustical baffle had no measurable effect on air diffusion; 3) there is a significant panel cooling effect by heat absorption through the plastic light diffusers; and 4) a complete equilibrium of air flow is established 45 seconds after introduction of air into the plenum.

► W. H. RIETZ has been elected president of Ilg Electric Ventilating Co. The new president, who was executive vice president before being named to his new position, joined the firm in 1916. J. M. Frank, president since 1928, was elected chairman of the board. Byron L. Casey, sales manager of the Midwest district, was elected a director of the company. J. J. Friedler was advanced to executive vice president, and Charles F. Reitz was named vice president in charge of production. Others recently promoted are Robert E. Parker, who was advanced to vice president in charge of research, and C. W. Dexter, who was named vice president in charge of sales promotions and export.

► DAVID C. SLIPHER has been retained by Frigidaire Div., General Motors Corp. as a consultant on research, design and marketing of air conditioning products for the home building industry. Mr. Slipher is a member of the board of trustees of the National Association of Home Builders' Research Institute.



PHOTO AT RIGHT ABOVE is the Heatwave Horizontal, for space savings installations in homes without basements; installs in attic, under floor, in service porch, attached garage, or may be suspended from joists in homes with basements.

If your business objective is twofold: to make more profit for yourself and to build a lasting clientele of satisfied customers, switch to HEATWAVE Gas Fired Floor Furnaces and Central Heating Systems! You can build additional sales and maintain goodwill with the HEATWAVE line. Every model is factory assembled, fire tested, ready to install, and has a 10-year factory warranty.

THE HEATWAVE FLOOR FURNACE



BTU
Input:
27,500
35,000
50,000
65,000
75,000

At last a floor furnace that combines QUIET operation with efficiency, economy and long life!



Distributed By Outstanding Wholesale Supply Houses • Write or Wire • Get The Facts!

SOUTHWEST MANUFACTURING CO.

Subsidiary of the F. E. Myers & Bro. Co.

BOX 151

AURORA, MO.



THE MARK OF QUALITY



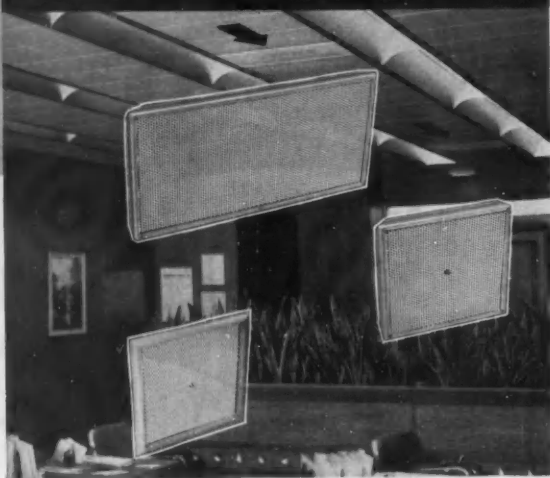
uni-flo
CEILING
DIFFUSERS

Low noise level, visual harmony with ceiling. Square and rectangular, surface and recessed types. Easy to install. Opposed-blade volume control adjusted through diffuser plate. Ceiling smudge minimized.



CATALOG
6597-1 — phone
nearby Field Office
or write.

Draft-free air distribution plus clean ceilings and low maintenance



Uni-Flo diffusers barely distinguishable, ceiling smudge-free, after years' service.

Barber-Colman Company

DEPT. D, 1106 ROCK ST., ROCKFORD, ILLINOIS, U. S. A.

For Home Heating and Hot Water...

Why Use Two Units when One will do better?

only

Metropac
WARM AIR FURNACES
with exclusive

**BUILT-IN METRO-FIN HOT WATER
supply unit**

can provide all these benefits

- ★ Winter air conditioning with humidified filtered circulating warm air.
- ★ Year 'round domestic HOT WATER supply.
- ★ All season air conditioning with built-in hot water supply.
- ★ One Unit money-saving installation.
- ★ One Unit compactness to save space.
- ★ One Unit operation with any fuel — oil or gas.
- ★ Dependable — long-life — trouble-free operation . . . available in capacities for any size home.

**WRITE TODAY
FOR FULL
INFORMATION!**

Distributorships available
in some territories

There's a
METROPAC
For Every Need!

METROMATIC MFG. CO.

15 Winchester Street Medford, Mass.

we hear that

(Continued)

► A SCHOLARSHIP PROGRAM designed to encourage high school seniors to study engineering has been set up by Armco Steel Corp. The program provides for 16 scholarships which will be awarded each year to outstanding seniors chosen from high schools in the communities where Armco plants are located.

► NATIONAL HEATER Co., Inc. has started building a new plant in St. Paul with construction scheduled to be completed around July 1. T. J. Costello, president, estimates that the new building will enable the firm to expand its output from 25 to 30 percent.

► THE HEATING AND AIR CONDITIONING controls show developed by Penn Controls, Inc. has started its spring tour during the course of which it will visit 22 eastern and northeastern U. S. cities. Opening show was given in Pittsburgh on April 3. On the schedule are Manhattan, N. Y., April 16; Brooklyn, April 18; Hempstead, N. Y., April 19; New Haven, Conn., April 23; Hartford, April 24; Springfield, Mass., April 26; Providence, April 30; Boston, May 1, and Portland, Maine, May 3. Albany, N. Y. will be visited on May 21; Utica, May 23; Syracuse, May 24; Rochester, May 28; Buffalo, May 29; Erie, May 31; and Cleveland, June 4.

The show is sponsored in each city by wholesalers in the area.

► THE SALT LAKE DIV. of Lennox Industries Inc., recently held a series of meetings in Salt Lake City for dealers and their wives. Featured was a presentation of new products by John W. Norris, president. The company's Columbus Div. has been bringing its new products to dealers in a mobile unit instead of having them come to a division meeting. In addition to samples of new air conditioning equipment and improved furnaces, the caravan carries a supply of literature outlining the company's 1956 advertising and promotional campaigns.

we hear that

(Continued)

► **CLOUD WAMPLER** has been elected chairman of the board of Carrier Corp. and in that capacity will continue as the firm's chief executive officer. William Bynum, executive vice president since 1951, was elected president to succeed Mr. Wampler and will be in charge of operations.

► **ELEVEN BRANCH SALES MANAGERS** of Owens-Corning Fiberglas Corp. who last year demonstrated outstanding abilities as sales executives, organizers, instructors and leaders have been named to the company's "President's Sales Club." They are William P. Johnson, R. C. Burgess, W. J. Clark, R. L. Cone, Jr., Charles E. Egan, James E. Higgins, D. W. Ladd, Jr., G. O. Mabry, Carl H. Ramien, John A. Tallman, Jr. and R. M. Meechan.

► **COPELAND REFRIGERATION CORP.** has named W. G. von Meyer and Rudy Berg vice presidents. Mr. von Meyer has been with the firm since 1933, has served as manager of national accounts and also as sales and advertising manager. Mr. Berg joined the company in 1934 and has served in various sales capacities.

► **THE BOARD OF DIRECTORS** of A. Nabakowski Co., sheet metal contractors of Amherst, O., recently elected M. W. Nabakowski president of the firm. J. F. Nabakowski was elected vice president, and R. I. Hubbard was named secretary and treasurer.

► **AT A NATIONAL SALES MEETING** held recently in Elyria, Ohio, officials of the Air Conditioning Div. of American Radiator & Standard Sanitary Corp. outlined a "new approach" to the merchandising of year 'round residential air conditioning. New products were introduced and the group also viewed a presentation of cooling sales promotion literature and consumer advertising developed to meet 1956 selling conditions. "The new approach," according to W. H. Baker, Jr., vice president, sales, "is designed to take advantage of the fact that central cooling with one unit has really begun to click with the public. To capitalize on this trend, we are going to make the public realize how easy and inexpensive it is to add summer air conditioning to existing home heating systems."

► **IRON FIREMAN MFG. CO.** expects to complete its new manufacturing plant in Ligonier, Ind. in June of this year, which will substantially increase manufacturing capacity. The company notes in its annual

YOU'VE GOT A SURE THING...

when you sell

BRANDES *

WALL BASE HEATING

Cut yourself a slice of the big profits, by carrying a line complete enough to meet all your prospects' requirements. Three distinct lines and a total of fourteen different sizes to choose from shows Brandes has the largest selection on the market today. With Brandes Wall Base Heating you get the utmost in beauty, and performance at reasonable prices, too!

*REGISTERED

THE BRANDES COMPANY

2046 WINNEBAGO STREET MADISON 4, WISCONSIN

WRITE FOR CATALOG

BRANDES WALL BASE HEATING

**. . . warm air
blankets the
wall . . .
radiates along
the floor**



\$ave on \$teel

all sizes, all types, all gauges

... all guaranteed to satisfy!

Save up to 20% on all your steel needs by calling **ROLLED STEEL PRODUCTS** collect to ORchard 3-7400 Skokie, Illinois.

Over 4,000 satisfied companies are currently saving with our low-price policy. Why not find out how much you can save, too. Reverse the charges *today*.

We carry a *complete stock* of all sizes, types and gauges . . . all *unconditionally guaranteed* to satisfy! Immediate shipment anywhere.

Another steel-buy typical of
ROLLED STEEL'S VALUES:
3,000 Tons Galvanized Sheets —
all sizes — all below warehouse
price.



Rolled Steel Products

Division of Emergency Steel Service Corporation
Distributors of: SHEETS—PLATES—BARS—STRUCTURALS—STRIP

GENERAL OFFICES & WAREHOUSE

7415 St. Louis Ave. Skokie, Illinois

ORchard 3-7400

we hear that

(Continued)

report that it will introduce several new lines of heating equipment this year, including residential gas and oil furnaces and commercial combination gas-oil burners.



STUDENTS WORK ON FINAL EXAMS at the end of an oil heating course at the Boston School of Advanced Oil Heat Training

► **STUDENTS FROM VARIOUS PARTS** of the country travelled a good many miles at their own expense to attend oil heating courses given at the Boston School of Advanced Oil Heat Training in Lynn, Mass. during the past several months. The classes are limited to 10 students and are open only to oil heating men who have had one or more years' experience at the installation and service level. Three-day courses are given every month except July and August. Ralph L. Dennis, manager of the Oil Heating Supplies Div. of Boston Machine Works Co., whose firm played an active part in establishing the school, points out that the continued popularity of the course indicates that oil heating men throughout the country are eager to improve their knowledge of the techniques of their profession.

► **GENERAL CONTROLS CO.** is building a new showroom and warehouse at Bryant & 4th St., San Francisco. According to J. F. Ray, the firm's vice president in charge of sales, larger quarters were needed to keep up with the growing demand for automatic controls in the San Francisco area.

► **ARMSTRONG FURNACE CO.** recently held a series of air conditioning schools in Kansas City, Mo. to accommodate dealers and wholesalers who were unable to attend the schools at the firm's factory in Columbus. Subjects covered at the week-long schools include installing, sizing and servicing of equipment.

► **VIKING AIR PRODUCTS DIV.,** National-U.S. Radiator Corp. plans to establish a manufacturing branch for blower wheels and assemblies in the Southwest

we hear that

(Continued)

to serve air conditioning, evaporative cooler and cooling tower markets in the Texas-Oklahoma-Kansas area. Robert A. Allwein will be in charge of operations at the new plant.

► **CARRIER CORP.** plans to spend \$12,000,000 during 1956 for new buildings and equipment at its Syracuse, N. Y. headquarters. Present plans call for new administration, personnel and research and development buildings costing about \$5,000,000. Production facilities will be expanded at a cost of approximately \$5,500,000. The remaining \$1,500,000 will be spent for miscellaneous purposes including major improvements to an existing building that will house the engineering organization of the Unitary Equipment Div.

► **THE AMERICAN ZINC INSTITUTE, INC.** has produced a 16 mm sound and color movie — Zinc Controls Corrosion — which is available for showing before technical, industrial and educational groups. Running about 35 minutes, the film presents a demonstration of the general mechanism of corrosion and explains how zinc controls it. For information on bookings, write the institute at 60 E. 42nd St., New York.



GORDON L. BOWMAN (left), sales manager of the Premier Co., watches final assembly of the first vacuum cleaning unit produced in the firm's expanded plant facilities in St. Paul

► **THE PREMIER CO.** has recently completed construction of a 6000 sq ft addition to its main plant in St. Paul. The added facilities represent a 100 percent increase in manufacturing area, according to Gordon L. Bowman, sales manager.

► **THE COLEMAN CO., INC.** has begun construction of a \$400,000 warehouse and office building in Los Angeles. The new building will have 34,500 sq ft of floor area, including 3500 sq ft of office space.

Modern Scully Aids for Oil Heat Installations

... the exclusive

VENTALARM[®] GAUGE

UNDERWRITER'S APPROVED

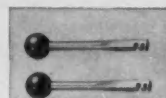
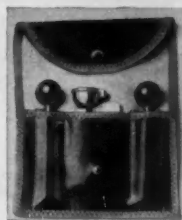


One labor-saving unit combining the famous VENTALARM Whistling Tank Fill Signal with a tank gauge. One item to install, instead of three! Unit case acts as a reducer. Sizes: VG-A, 2" x 1 1/4". VG-B, 1 1/2" x 1 1/4".

Specify tank depth when ordering.

... the New

3-D ELECTRODE KIT



Designed for fast accurate 3-dimensional adjustment of burner electrodes. Gauge cup slips over burner nozzle. Permits setting by degree angles or by inch measurement method. Special electrode benders included. All in a handy pouch kit.

... the New

Scully Safety Vent Cap



Guarantees full venting. Floating screen guards against insect clogging. Clutch-head screw locks cap on pipe, making it theft-proof. Size: 1 1/4". Handy-Pack of 6 to a box.

... the Original and Dependable

VENTALARM[®] WHISTLING TANK FILL SIGNAL



Provides for speedy, accurate oil delivery, night or day, without home entry. With it, fuel delivery becomes truly automatic for the homeowner. Full variety of models and sizes for old and new tank installations — residential, commercial or industrial.

Over 4,000,000 VENTALARM Signals now installed.

Scully Products are manufactured under U. S. and Foreign Patents and Patents Pending.

PURCHASE FROM YOUR FAVORITE SUPPLIER



SCULLY SIGNAL COMPANY

174 Green Street, Melrose 76, Mass.

Canadian Branch: Scully Signal Ltd., 286 King St. W., Toronto, Ontario

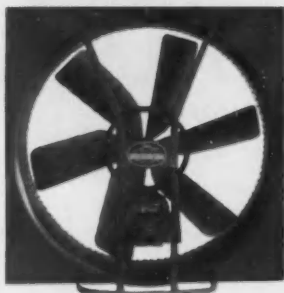
©1955 SCULLY SIGNAL CO.

NOW! COOLAIR QUALITY AT COMPETITIVE PRICES!



Budgetair Attic Fan, Type BA, finest in lowest price range. More air at lower, quieter fan speeds. Rubber cushions built into fan frame. Easier to install. Certified ratings. New design shutter, ready to install, no adjustments.

General Purpose Ventilating Fan, Type CQ. Extra-quiet for all types of industrial and commercial jobs where quiet is essential. Exclusive vibration-isolators built in. High efficiency at low static pressures.




2 NEW COOLAIR FANS!

Greater Efficiency — Low Prices!

Coolair fans have been long acknowledged as the quality line in the industry. Now new design, engineering and production methods bring traditional Coolair quality to you at prices that fit the job — no matter how tight the budget.

Here's proof of competitive prices—Coolair fans were used on all four U. S. 3rd Army barracks rehabilitation projects started in the summer of 1955, plus many others!

THE AMERICAN COOLAIR CORPORATION
Jacksonville 3, Florida



**AMERICAN COOLAIR CORP., 3610 Mayflower Street,
Jacksonville 3, Florida**

We are interested in Coolair fans for () commercial, () industrial,
() residential or _____ jobs.
(list other) _____

NAME _____

FIRM _____

STREET NO. _____

CITY _____ ZONE _____ STATE _____

wholesaler doings...

► A HEATING AND AIR CONDITIONING industry meeting is one of the features of the 60th annual credit congress of the National Association of Credit Men scheduled to be held in Cincinnati May 13-17. John Robertson of the Robertson Heating Supply Co., Alliance, O. wholesaler, is chairman of the heating industry committee and Robert Woodward of the Palmer-Donavin Mfg. Co., Columbus, is vice chairman. Speakers include Mr. Robertson, who will talk on "SAD-istics", or Statistic Tragedies in Wholesaling and Harvey J. Malde, credit manager of Mueller Climatic, who will discuss Growth of Air Conditioning. Thomas A. Hammer of the Carrier Corp., will cover Credit and Financing Problems at the Distributor and Dealer Level in the Air Conditioning Industry. W. G. Swanson of the Capitol Supply Co., Lincoln, Nebr. and William A. Mull of Eljer-Murray Corp. will participate in a panel discussion on Constructive Credit Department Assistance to Customers. S. Shuman of Richmond Radiator Co. is scheduled to discuss Collecting Delinquent Accounts and John dePass of the National Radiator Co. will explain Methods of Reducing Old Accounts While Selling. The audience will participate in a session on "What's Your Problem?" under the direction of R. J. Woodward. Other speakers include John T. Brown, Jr., vice president, Hajoca Corp., and I. M. Zimet of the Toledo Association of Credit Men.

► THE MOORE-HANDLEY HARDWARE Co., Birmingham, Ala. has been appointed a distributor of Westinghouse ventilating sets and industrial fans. Territory to be served includes the state of Alabama, the middle Tennessee trading area, and the northwest part of Florida.

► THE HARRY ALTER Co., Chicago wholesaler, has begun construction of a new two story building at 1717 S. Wabash Ave. which will house the firm's general offices.

► ELECTRIC CONSTRUCTORS, INC., 3000 Third Ave., S., Birmingham, Ala. has been named exclusive local wholesale distributor of York room air conditioners. Officers of Electric Constructors are Donald B. Clayton, Sr., president; Carl L. Teal, secretary and treasurer; and J. W. Whatley, sales manager.

► STEEL CITY SUPPLY Co., Birmingham wholesaler, is bringing a "traveling school" to Airtemp dealers in Alabama and northwest Florida. The mobile school — a truck carrying new heating and air conditioning units as well as a classroom for dealers — has visited more than a dozen southern cities, including Pensacola, Fla; Montgomery, Auburn, Troy and Mobile, Ala. Officials of the Steel City firm report that every class held so far has been well attended by dealers and servicemen in each area.

► **PETER A. FRASSE AND CO., INC.**, steel and aluminum distributor, has broken ground for a new office and warehouse building on Silas Deane Highway in Wethersfield, Conn. The new 26,000 sq ft building will be three times the size of the firm's present building in Hartford. R. B. Goode, present district manager at Hartford, will direct operations when construction is completed.

► **MODERN DISTRIBUTORS, INC.**, 2622 S. Broad St., Chattanooga, Tenn. has been named a distributor of residential air conditioning equipment by Gibson Refrigerator Co. Territory to be served comprises 11 counties in Tennessee, five in Georgia and two in Alabama. Fred M. Dygert Sales, 900 Monroe Ave., N. W., Grand Rapids, Mich. will act as distributor in western Michigan, and Air Conditioning Supply Corp., 12303 St. Clair Ave., Cleveland will cover several counties in Ohio.

► **THREE HUNDRED AND FIFTY** franchised dealers of Temperature Equipment Corp., exclusive dealer for Carrier Corp. in the Chicago area, attended a recent all-day sales meeting held at Nielsen's restaurant in Elmwood Park. Purpose of the meeting was to introduce new Carrier residential air conditioning equipment to the dealers.

► **CONTRACTORS HEATING AND SUPPLY CO.**, Denver wholesaler, recently held a heating and air conditioning meeting for builders at the Shirley Savoy hotel. Speakers discussed the problems related to home heating and cooling and explained how adequate systems can play a major role in the sale of homes. Other subjects discussed included what potential buyers look for in a heating system and what the future holds for residential air conditioning. A feature of the meeting was a tour of the firm's plant where visitors were shown how furnace fittings and rain goods are fabricated.

► **APPROXIMATELY 220** WHOLESALEERS from the western half of the country gathered in Chicago recently to view A. O. Smith Corp.'s restyled "Permaglas" warm air furnaces and central air conditioners. Among the visitors were representatives of Auer Steel & Furnace Supply Co., Milwaukee; Chicago Furnace Supply Co., Chicago; and R. R. Howell Co., Minneapolis.

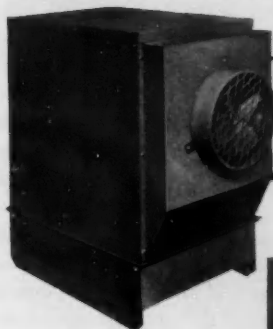
► **THE SPEAKMAN CO.**, 301 E. 30th St., Wilmington, Del. has been appointed a wholesaler of heating and air conditioning equipment by the Heil Co.

► **TEMP-AIRE WHOLESALEERS, INC.**, St. Louis will handle distribution of air conditioning products in five counties comprising the greater St. Louis area for Airtemp Div., Chrysler Corp.

IN CAPACITIES FROM 2 to 50 TONS

THE LARKIN WATER SAVER IS A MONEY SAVER!

All along the line the LARKIN Water Saver Cooling Tower is a money saver for you and your customers:

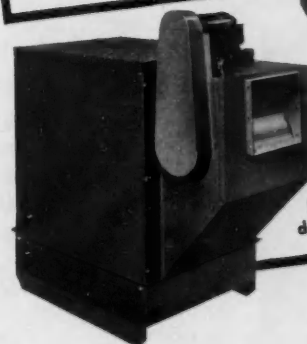


1 Low initial cost permits you to make lower bids—saves your customers money.

2 Highly efficient—a bonus amount of wetted surface assures conservative ratings. This means lower head pressures, less current loss and smoother performance.



3 Easily serviced—bolted construction. Unit is easily dismantled in the field—all the way down to the sump.



The LARKIN Water Saver can be a money maker for you on every air conditioning installation.

FAVORED FEATURES

- Wetted surfaces of all-heart redwood.
- 16-gauge steel panels mastic-coated on inside, finished with epon base, zinc-chromated primer and two coats of baked-on enamel outside.
- All models equipped with hot-dip galvanized propeller fans. Centrifugal blower optional on all models through 20 tons.
- Gravity-type distribution basin—low pumping head over tower.

Write for free literature, price list and capacity data. No obligation. Or see your wholesaler.



LARKIN COILS INC.

519 Memorial Drive, S.E. • Murray 8-3171
P. O. Box 1699, ATLANTA, GEORGIA

merchandising ideas

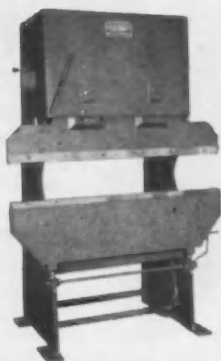
► THE NATIONAL WARM AIR Heating and Air Conditioning Association has prepared a booklet designed to help its dealer members sell summer air conditioning. Titled *Air Conditioning: Key to New Family Living Patterns*, it presents some interesting facts and figures obtained from families living in the Austin Air Conditioned Village. Copies may be purchased from the association's headquarters at 640 Engineers Bldg., Cleveland 14. The association also offers a sample news release which dealers may use to publicize the pamphlet in local newspapers. Slanted toward the housewife's interests, the suggested copy explains how air conditioning affects family living patterns, providing such benefits as "more summer hours spent together as a family unit, better appetites, and more restful sleep, especially among children." These advantages were cited by housewives themselves, the copy points out, in a survey recently conducted at the Air Conditioned Village. Provision is made for insertion of the dealer's name and address as the source where copies of the results of the survey may be obtained.

Another sales promotion aid is the WHAM (Warm air Heating and Air conditioning Modernization) kit,

which may also be purchased from the association's headquarters. This is a modernization publicity-advertising program for use by local level dealer groups. NWAHACA points out that it is ideally suited for tie in with local Operation Home Improvement campaigns.

► THE UNION ASBESTOS & RUBBER Co. reports active dealer interest in its recently announced "1956 Unarco Dealer Plus Plan." L. H. Kramer, general manager of the company's Heating and Cooling Div., explained that under the plan dealers will be presented with awards based on the number of tons of packaged air conditioning products they sell during the year. It is based, he said, on a point system which provides 800 points for each ton of packaged air conditioning sold. He expressed the opinion that the unusual interest shown probably arose from the fact that dealers are allowed their choice of approximately 1600 different items to be awarded.

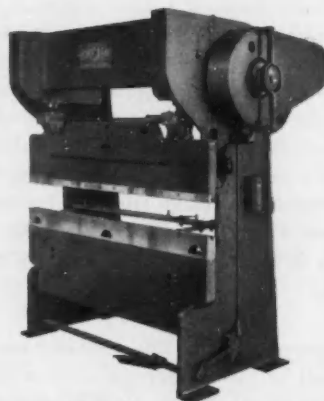
► THE SKUTTLE MFG. Co. offers an all-steel humidifier display that provides an effective means of demonstrating typical mounted humidifier installations. A mounting rack is included at the top of the rack to show packages of "Vapoglas" evaporating plates. The display is compact in size, occupies only 6½ by 15 in. of counter space.



Model 131 Press Brake
11 Ton Capacity

Cut Production Costs on...

BEADING
BENDING
BOX and PAN FORMING
CHANNELING
CORRUGATING
CURLING
FLATTENING
HEMMING
JOGGLING
MULTIPLE PUNCHING
NOTCHING
OFFSETTING



Models A, B, C, and L Press Brakes
Advanced Design - 30 to 60 Ton Capacities

PRESS BRAKES

11 to 60 Ton Capacities for Sheet Metal Work

Complete recommendations for any job on request.

6004

DREIS & KRUMP
MANUFACTURING CO.
7404 S. Loomis Boulevard, Chicago 36, Ill.



PRESS BRAKES • HAND AND POWER BENDING BRAKES
STRAIGHT-SIDE PRESSES • INDUCTION HARDENED DIES
SPECIAL METAL-FORMING MACHINERY

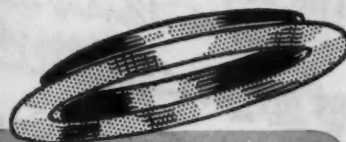
► **CONNOR ENGINEERING CORP.** offers warm air heating and air conditioning wholesalers an easel backed counter card for displaying sample 4 in. "Kno-Draft" residential ceiling air diffusers. The display measures 17 by 24 in., is printed in two colors.

► A **PACKAGE** that converts to a counter display has been designed by General Controls Co. to merchandise "Tempotherm" clock thermostats. The display package requires only 6 in. of counter space. It is printed in tones of gold, red, blue and black on a white background. The company is placing national promotional effort behind the new thermostat using such media as TV, radio, newspapers and magazines.

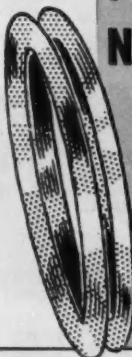
► **THE THERMO-BASE DIV., Gerwin Industries, Inc.** backs up baseboard heating and cooling comfort claims with a "comfort guarantee" which is offered to dealers on a "registered installation" basis. Each guarantee contains a detachable coupon which states that the installation conforms to the sizing method recommended in the company's catalog No. 209.

► **WALTON LABORATORIES, INC.** reports the successful outcome of a humidifier merchandising and selling program conducted over the past several months. "Proof that this program works is the fact that we have been forced to speed up all delivery schedules in order to meet the growing dealer demand for humidifiers," according to Jack Feldermann, vice president of the firm. Called the "Devil Dryness" program, the plan was based on a piece of dried out driftwood in the shape of a devil, and featured the selling theme that this driftwood was once a beautiful piece of hand finished wood until exposure to dry air shriveled and disfigured it into twisted driftwood. Merchandising material supplied to dealers included a greeting card with a picture of "Devil Dryness," advertising mats for dealers to use in their advertising programs, and actual pieces of driftwood.

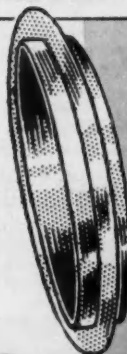
► **COMMON SENSE TIPS** to help the public use gas fired equipment safely and efficiently are featured in a pamphlet being offered by the American Gas Association. Nine Tips on Enjoying Modern Gas Service points out that customers should follow carefully any ventilation recommendations of their local gas companies and should be sure that flue-connected equipment is working properly. The reader is reminded that heating equipment approved by the association and installed by qualified installers does the job efficiently and economically. The folder can be used as a mailing piece, as a give-away, as a tie-in with newspaper ads or window displays. Copies are available from the Public Information Bureau, American Gas Association, 420 Lexington Ave., New York 17. Prices range from 3 cents each in small quantities to 1 cent each in bulk orders.



One Ring— or thousands... you'll Gain More with **NATIONAL Angle Rings**



National rolls to your specifications — angles, channels, tees, rods, flat-bars, pipe and tube — plain, or punched for riveting or bolting.



If you haven't worked with rings rolled by National, you're due for a pleasant surprise... for these true rings, guaranteed to fit your job, are:

1. Accurately rolled with uniform curvatures.
2. Easy to fit on the job.
3. Punched with the bolt or rivet holes you need.
4. Available in the metals you use — carbon steels, stainless steels, aluminum, etc.
5. The best value at the best price.
6. Ready for immediate delivery in leg out rings in many sizes.

Tens of thousands of National rings have been used in all parts of the country by large and small sheet metal shops. They are rolled by experts on the most modern high-speed equipment to give you a precision ring at the lowest cost. Write today about your requirements, and the National list of stock sizes and quantity discounts.

Sheet metal fabricating and assembly work is another National specialty organized for YOU. Use it as your stand-by facility.

Phone —
Bishop 7-4255

NATIONAL METAL FABRICATORS

2142 S. Sawyer Avenue

• Chicago 23, Illinois

The MODERN Lighter Tube
With the Slanting Blue Flame

**Today's Great Contribution
 to Gas Appliance Safety and
 Dependability!**

To safeguard all users of gas-fired heating equipment and appliances against hazardous lighting methods, more and more manufacturers are engineering the MODERN Lighter Tube into their units. Utilities and wholesalers too, strongly favor the MODERN Lighter Tube as a component part of all gas-fired units. Dealers recognize it as a vital sales feature. Available in aluminum or stainless steel ½ O.D. tubing.

The MODERN Lighter Tube offers the utmost in . . .

- ★ SAFETY
- ★ DEPENDABILITY
- ★ SIMPLICITY
- ★ CONVENIENCE

**PERFECTED
 OUTSIDE
 LIGHTING**

MODERN MATERIALS CO.
 NORTHVILLE MICHIGAN



appointments . . .

► NORWOOD S. HEARN as sales manager of the Windmaster Corp. Mr. Hearn was formerly with the Buckeye Furnace Pipe Co. where he served as a sales representative covering the midwestern states.



Norwood S. Hearn



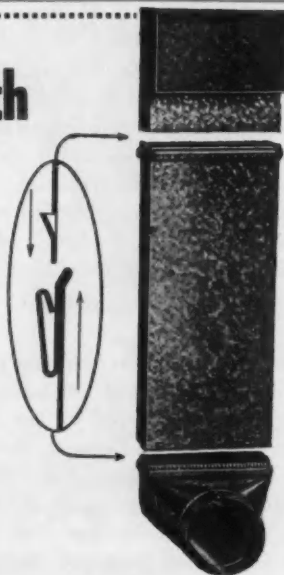
L. H. Kramer

► L. H. KRAMER as general manager of the Union Asbestos & Rubber Co.'s Heating and Cooling Div. Before joining the division, Mr. Kramer was executive vice president and general manager of the American Well Works. Sweiger-Davidson Co., 3110 W. 51st St., Chicago has been named Chicago metropolitan area sales representative by the division. The new representative will handle the sale of heating and cool-

faster—better installations with EXCELSIOR CLICK-LOCK SLIPS

The accompanying illustration shows three fittings—Stack Head, Wall Stack, and Boot—as now furnished with EXCELSIOR Click-Lock Slips. This type slip is standard on all EXCELSIOR fittings having slips. The detail of the lock shows how the fittings are just pushed together and locked. Much easier and quicker assembly saves time on every installation—plus firmer and better joints. Full details on request.

For details and prices on EXCELSIOR complete line of Standardized Pipe, Ducts, and Fittings ask for current Catalog No. 9B.



THE EXCELSIOR STEEL FURNACE COMPANY

118 S. CLINTON ST.

EXCELSIOR HEATER & SUPPLY DIV.
 The Excelsior Steel Furnace Company
 379 Hersey Ave., St. Paul 14, Minn.
 Telephone: MI 6-7253

Phone: FRanklin 2-8120

BREX DIV.
 The Excelsior Steel Furnace Company
 One Industrial Rd., Wood Ridge, N. J.
 Telephone: WE 9-2020

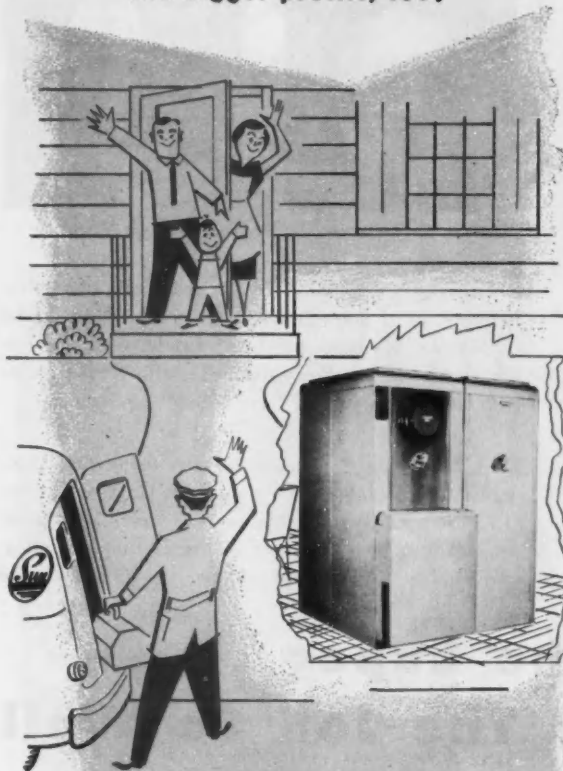
CHICAGO 6, ILL.

EXCELSIOR HEATING SUPPLY DIV.
 The Excelsior Steel Furnace Company
 2 East 3rd St., Kansas City 5, Mo.
 Telephone: VI 2-3715



Sure way TO MAKE LASTING FRIENDS

and bigger profits, too!



Patten

FURNACES • AIR CONDITIONING

No matter how large or small your business may be . . . its continued success depends upon *satisfied customers!* Patten's high-quality line of furnaces and air conditioners have the built-in advantage of *satisfaction guaranteed* . . . your most valuable sales feature. Sell SUN Fuel-Master . . . and make **LASTING FRIENDS** with all your customers.

Patten . . . The complete line that meets any heating or cooling requirement. Write for full details today!

The Quality Line at Competitive Prices

J. V. Patten Company

SYCAMORE, ILLINOIS, U. S. A.

ESTAB. 1898 • INC. 1928

put
Extra-Profits
in your
pocket
with

"engineer-
approved"



ELGEN All-Tite VANE RUNNERS NOW IN COILS!



THE EASIEST
AND
QUICKEST WAY
EVER DEvised

for installing single or
double blade turning
vanes in square el-
bows. No special
tools required.

New production machinery of our own exclusive design, now enables us to produce button type Elgen All-Tite vane runners in continuous coils, effecting a savings in your cost per job.

COILED ELGEN ALL-TITE VANE RUNNERS MEANS . . .

- **Less Waste!** Waste pieces due to short ends are a thing of the past. Vane runner metal is coiled in 100 foot lengths, you just pull out the exact footage needed.
- **Easier Storage!** Each coil weighs approximately 50 lbs. and is packed in a box 28" x 28" x 5". Box fits easily under bench or against wall.
- **Easier Handling!** No loose pieces lying around to get in the way or collect dirt.
- **Unrolls absolutely flat!** Vane runner metal emerges from the box at bench height . . . absolutely flat . . . ready for use.

TWO MORE ENGINEER-APPROVED ELGEN PRODUCTS THAT SAVE YOU TIME AND MONEY



ELGEN SILENT DUCT

. . . for forming "flexible" duct connectors. A one piece metal to material unit, packed in coils, unrolls absolutely flat. Makes on the spot work a cinch.

ELGEN DAMPERSET

. . . for multi-blade dampers, parallel or opposed. Most perfect damper hardware developed.

**ELGEN PRODUCTS ARE SOLD THROUGH
LEADING JOBBERS EVERYWHERE.**

Write today for free
catalog and "spec" sheet!

ELGEN MANUFACTURING CORP.

41-34 39th Street, Long Island City 4, N. Y.



THE RIGHT SHEAR FOR ANY CUTTING JOB

MARSHALLTOWN



**ROTARY
THROATLESS
SHEARS**

CUTS ALL SHAPES—SIZES

- **QUICKER**
- **EASIER**
- **FASTER**

Here's a shear that's right for every job. Speedy — efficient. Cuts up to 1/4 inch stock — speed to 8 ft. per minute. Excellent for irregular cutting or straight splitting. Available in hand operated or motorized models. Prompt shipment. Send today for special illustrated bulletin.

**MARSHALLTOWN
MANUFACTURING COMPANY**
Marshalltown, Iowa

appointments

(Continued)

ing equipment in Cook, DuPage, Kane, Will and Lake counties in Illinois and in Lake and Porter counties in Indiana.



Thomas N. Ridgaway, Jr.



John G. Mitroka

► **THOMAS N. RIDGAWAY, JR.** as district representative in the state of Maryland for York-Shipley, Inc. **JOHN G. MITROKA** has been appointed district representative for the northeast Pennsylvania territory. Both men will handle the sale of "York-Heat" equipment.

► **J. C. DAVIDSON** as assistant sales manager of residential heating and cooling products for the Airtemp Div., Chrysler Corp. For the past two years Mr. Davidson has served as manager of the division's application engineering department. He has been with the

Only The Super Can Do The Job So Well



Super Model SH

No other furnace cleaner has as many design and construction features for doing a thorough cleaning job as the Super Model SH. No other furnace cleaner is as capable of creating the kind of customer satisfaction that means repeat business and new prospects for plants and services.

- **Cleans all kinds of heating plants**
- **Light weight**
- **Wet and dry suction**
- **Cleans 'em hot or cold**
- **Available with stainless steel or enamelled steel container**

Ask your local Super dealer.

Write for complete specification data.

THE NATIONAL SUPER SERVICE COMPANY

1944 N. 13th St., Toledo 2, Ohio

Sales and Service in Principal Cities
In Canada: Plant Maintenance Equipment Co.
Toronto, Montreal, Vancouver



SUPER SUCTION

SINCE 1911

"THE DRAFT HORSE OF POWER SUCTION CLEANERS"

"Once Over Does It"

**PROGRESSIVE
DEALERS PREFER**

Incineror

TRADEMARK
REG. U.S. PAT. OFF.

... the "completely
automatic" home
incinerator



Incineror gives you more . . .

Profitable Dealer Advantages

- Above-average profits
- Unlimited prospects
- No costly trade-ins
- Top-brand name
- Increased gas equipment sales
- Strong utility support

more . . .

Powerful Sales Features

- Downdraft principle assures complete incineration.
- Completely automatic operation with "Incinitrol." Set it and forget it.
- Full 2-bushel capacity.
- Complete safety—fully A.G.A. approved.
- Fiberglass insulation.
- Lifetime porcelain top cover and lid.

Write for details today!

A.G.A.
APPROVED



BOWSER, INC.
INCINERATION DIVISION
SALES OFFICES: 1335 W. RANDOLPH, CHICAGO, ILLINOIS
Factory: Cairo, Illinois
Pioneers in gas-fired incineration

CUT CUT

**yourself a bigger
piece of the melon!**

Now, "one time" installation customers can be turned into steady customers by adding furnace cleaning to the services you offer.

When you offer a cleaning service, you're back in that cellar . . . and that's when you can sell that customer repairs and new installations or sign him up for oil sales.

Pullman Never-Clog® Vacs are the choice of professional furnace cleaners because they're dependable. The multi-stage turbine fans scoop up stubborn soot, scale, ash and debris quickly, efficiently. Performance is *guaranteed* because Pullman's Never-Clog® Vac with its special double filter system . . . *never* clogs under any cleaning conditions. Truly portable.

Standard Equipment At No Extra Cost

- 27" metal crevice tool.
- Power blower nozzle.
- Handy scraper tool.
- Flexible metal asbestos packed hose.
- 10', 1½" I.D. heavy duty hose.



**You're IN with
a dependable . . .**

Pullman NEVER-CLOG®

PULLMAN VACUUM CLEANER CORP.
25 Bulck Street, Boston 15, Mass.

AA-11

Rush me complete details on how the Pullman Never-Clog® Vac will give me a "bigger share" of the pie.

Name _____

Company _____

Address _____

City _____ State _____

P-K hardened Screwnails
give you nail driving speed
plus screw
holding power

Fasten sheet metal to wood... wood to wood in seconds!

For the finest fasteners made, insist on Parker-Kalon... the name you can trust. Get samples from leading distributors who stock P-K Screwnails . . . or write:



IF IT'S **P-K** IT'S O.K.

PARKER-KALON fasteners

Parker-Kalon Division • General American Transportation Corporation • Clifton, New Jersey

YOU Need This Air Conditioning Catalog

Wholesale Only

It's FREE

*Illustrates,
Prices and
Describes*



OVER 10,000 ITEMS

**AIR
CONDITIONING
REFRIGERATION
ELECTRIC MOTORS
Parts and Supplies**

We sell you — NOT your customers. And we sell for less. Buy — by mail — with confidence from our **DEPENDABOOK** catalog. Prompt deliveries of fresh stock — for less!

Write for your copy today on your letterhead to

The HARRY ALTER CO., INC.

1717 S. Wabash Avenue, Dept. G, Chicago 16, Illinois

Branches in New York, Dallas, Atlanta

appointments

(Continued)

division since 1947. R. T. Marshall has been appointed New Orleans assistant regional manager. Mr. Marshall was previously general manager of Airtex, Inc., Houston, Tex. distributor of Airtemp equipment.

► **JOHN T. TIGHE** as assistant sales manager for appliances of the Delco Appliance Div., General Motors Corp. Mr. Tighe will be in charge of merchandising programs. E. Connor Johnson has been appointed regional manager of the division's newly created Mid-Atlantic region comprising the states of Maryland and Virginia as well as the District of Columbia and parts of North Carolina and Tennessee.

► **GEORGE L. OGDIN, JR.** as general sales manager of the Fulton Sylphon Div., Robershaw-Fulton Controls Co. Mr. Ogdin has been with the company since 1940. Prior to his recent promotion he was assistant general sales manager. M. R. Gilbert, Jr. has been named district manager of the company's heating controls division in the Chicago area.

► **ARNOLD LINZER**, 1150 Broadway, New York 1 as representative for the Krueger Sentry Gauge Co. in the metropolitan New York area, New Jersey and

NEW IMPROVED Vaporite Automatic Humidifier

Fits any straight side warm air furnace



Series 555

**Corrosion Resistant
Stainless Steel
Vapor Pan 4" x 15"**

**ONE SIZE . . . ONE KIT ASSURES LOWEST
COST INSTALLATION AND MINIMUM
INVENTORY EXPENSE**

Vaporite No. 555 Humidifier comes completely assembled in one package. No extras to buy . . . no parts to assemble . . . no extra holes to cut . . . no pan leveling or tricky mounting.

NEW IMPROVED VALVE — Provides more positive drip-feed thermostat operation. Water drips fastest when furnace is hottest . . . pan is dry when furnace is cold. Adjustable for precise vaporization needs of each installation.

Write for Catalog A-4

AUTOMATIC HUMIDIFIER CO., Cedar Falls, Iowa

appointments

(Continued)

Philadelphia. Mr. Linzer was formerly a representative for the firm's associate company, Krueger Metal Products, in that territory.

► C. RICHARD SWORD as manager of sales for Aerovent Fan Co., Inc. Mr. Sword has been assistant manager of sales since 1952.



C. Richard Sword



William H. Clayton

► WILLIAM H. CLAYTON as district manager covering the southern states for the Air Conditioning Div., American Radiator & Standard Sanitary Corp. Mr. Clayton, who has been the division's district representative in Texas since 1954, will be responsible for sales and engineering services to distributors and dealers throughout the South.



STANDARD IN THE FIELD

Superior features of Tharco—

- No Shrinking
- No Cracking
- No Checking

THARCO is available in either black or light gray in 1-pound cans to 350 pound drums.

ORDER FROM YOUR JOBBER

THE ARMSTRONG COMPANY
241 S. Post Street • Detroit 17, Michigan

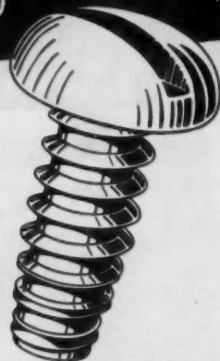


EST. 1911

Proved way to cut assembly costs **P-K®** hardened Self-Tapping Screws

- Eliminate tapping, soldering, riveting, bolting
- Stay tight under vibration
- dependable, uniform quality

**Save time and money
in fastening metals—
plastics—laminates**



Type Z Slotted or Phillips

IF IT'S **P-K** IT'S O.K.

PARKER-KALON

THE ORIGINAL SELF-TAPPING SCREWS

Parker-Kalon Division • General American

Transportation Corporation • Clifton, New Jersey

Save Time...Labor...Material with **BEVERLY** metal cutting **SHEARS**

throatless **SHEARS**

Make any cut—straight, irregular, curved. Exclusive design permits turning work any direction while cutting. 4 models—cap. to 3/16".



Inside **SLOTTER**

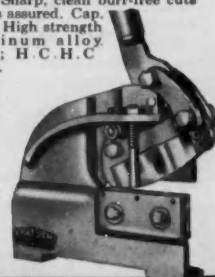
Makes cuts up to 8" inside edge of sheet. Sharp, clean burr-free cuts always assured. Cap. 16 ga. High strength aluminum alloy body; H.C.H.C. blades.



slitting **SHEAR**

New "SS" Series—easier cutting with compounded linkage. 3 models—cap. to 1/4"; trimming capacity to 1/4" mild.

See your Beverly Distributor. Write for FREE illustrated Bulletin.



Beverly SHEAR MFG. CO.

3020 W. 111th STREET • CHICAGO 43, ILLINOIS

Now

10 PRODUCTION TOOLS

COMPLETE
IN ONE TOOL

FOR \$460⁰⁰
ONLY

F.O.B. WAUKEGAN, ILL.

No. 1826

Patented.

SMITH'S 180° Universal Brake combines the usefulness of 5 familiar tools with 5 new ones as illustrated below. . . . This brake will silence a lot of hammering in the average sheet metal shop, at a profit! . . . It is adapted to permit selective bending of portions of a work piece without restriction! . . . It will handle 18 gauge mild steel 26" wide to 7 gauge 1 1/4" wide, at any angle, up to 180° in one operation! . . . It has adjustable angle stops and back gauges to assure precise duplication of work pieces, making it a very valuable production tool. Write for more information.



R. E. SMITH

1124 ELIZABETH
WAUKEGAN, ILL.

► **JOHN V. YOUNGBLOOD** as general sales manager of the H. C. Little Burner Co., Inc. Mr. Youngblood has had 14 years of sales experience at retail, wholesale and manufacturing levels.

► **GEORGE EMERSON** as a district sales manager for O. A. Sutton Corp. Mr. Emerson, formerly with Westinghouse Electric Corp., will handle sales of "Vornado" air conditioners and air circulators in Chicago, St. Louis, Milwaukee, Minneapolis and Peoria. Howard N. Morse has also been named a district sales manager and will handle the sale of air conditioners and air circulators in Georgia, Florida and eastern Tennessee.

Obituaries

George B. McClellan

GEORGE B. MCCLELLAN, sales manager of William Wallace Co., died suddenly at his home March 1, 1956. Mr. McClellan, 47 years old, became general sales manager of the firm in January of this year. Before that he was sales promotion manager, in which

FOR SOUND ECONOMY

Kwik-WAY

DAMPER REGULATOR SETS

No. 69 SET
SINGLE BEARING
for SMALL DAMPERS

Retractable bolt and quick, easy means of fastening bearing are among features that make this the most convenient and economical set available.

ONE BLOW SETS BEARING SECURELY

No. 70 SET
for LARGER DAMPERS

Identical with No. 69 except with 2 retractable bolt bearings.

HART & COOLEY MANUFACTURING CO.
500 EAST EIGHTH ST., HOLLAND, MICH.

DESIGNED FOR THE BUSY SHOP

CAPACITY
NO. 16
3/8"
THRU
1/4"

CAPACITY
NO. 17
1/4"
THRU
1/4"

POWERFUL • EASY TO OPERATE

WHITNEY-JENSEN

BENCH PUNCHES

Write for **BIG NEW CATALOG**

WHITNEY METAL TOOL COMPANY
702 Forbes St., Rockford, Ill. Since 1910

★ ★ ★

Manufacturers' Agents

*Are you interested in
securing additional lines?*

We are occasionally asked by our manufacturer advertisers to suggest the names of manufacturers' agents in various sections of the country whom they can contact in regard to representation of their residential and small building heating, air conditioning and sheet metal products.

If you would like your name listed on our records for inquiries we may receive on your territory, we invite you to write us. There is no charge in connection with this service.

American Artisan

6 NORTH MICHIGAN AVENUE
CHICAGO 2 ILLINOIS



When
You've
Got to
Figure
the Job
TIGHT

See the large Duro-Dyne ad on page 150
Use Less Skilled Labor to make
excellent NON-BINDING louver
dampers with the

NEVA-BIND DURO-BLADE-KIT

PRECISION ENGINEERED DAMPER HARDWARE

Make your own smoothly-operating, NON-BINDING louver dampers with LITTLE CARE AND NO ALIGNMENT AFTERWARD. Costs no more than old type kits. You make only frame and blades.



DURO-DYNE CORPORATION

800-B Third Ave., New Hyde Park, New York

WHO-O-O

**MAKES CONTROL
INSTALLATION
EASIER?**

See page 25

**LOOK how many jobs
AN I-R
IMPACTOOL
WILL
DO.....**



Want real versatility . . . real power and speed for just about any job a portable power tool can do? Grip one of Ingersoll-Rand's five great Electric Impacttools—2U, 4U-SD, 5UT 8U and 34U—a size for every job. If you work on metal, wood, masonry or other materials, you'll save time, hard work and money when you own an Ingersoll-Rand Impacttool. Ask your Ingersoll-Rand Distributor for a free demonstration.

- RUN NUTS
- REAM
- DRIVE SCREWS
- SAW HOLES
- DRILL
- WIRE BRUSH
- TAP
- BORE WOOD
- DRILL MASONRY
- DRIVE STUDS

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N.Y.

Now

10 PRODUCTION TOOLS

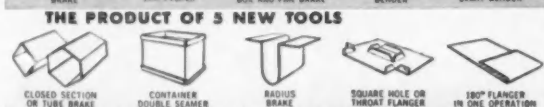
COMPLETE IN ONE TOOL

FOR \$460⁰⁰
ONLY

F.O.B. WAUKEGAN, ILL.

No. 1826

SMITH'S 180° Universal Brake combines the usefulness of 5 familiar tools with 5 new ones as illustrated below. . . . This brake will silence a lot of hammering in the average sheet metal shop, at a profit! . . . It is adapted to permit selective bending of portions of a work piece without restriction! . . . It will handle 18 gauge mild steel 26" wide to 7 gauge 1 1/4" wide, at any angle, up to 180° in one operation! . . . It has adjustable angle stops and back gauges to assure precise duplication of work pieces, making it a very valuable production tool. Write for more information.



R. E. SMITH

1124 ELIZABETH
WAUKEGAN, ILL.



No. 69 SET SINGLE BEARING for SMALL DAMPERS

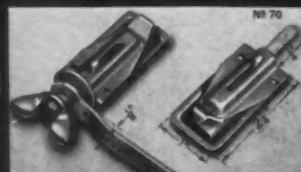
Retractable bolt and quick, easy means of fastening bearing are among features that make this the most convenient and economical set available.

No. 70 SET for LARGER DAMPERS

Identical with No. 69 except with 2 retractable bolt bearings.



ONE BLOW SETS BEARING SECURELY



HART & COOLEY MANUFACTURING CO.

500 EAST EIGHTH ST.,

HOLLAND, MICH.

FOR SOUND ECONOMY



Kwik-WAY DAMPER REGULATOR SETS

**DESIGNED
FOR THE
BUSY
SHOP**



POWERFUL • EASY TO OPERATE

**WHITNEY-JENSEN
BENCH PUNCHES**

Write for **BIG NEW CATALOG**
WHITNEY METAL TOOL COMPANY
702 Forbes St., Rockford, Ill. *Since 1910*

► **JOHN V. YOUNGBLOOD** as general sales manager of the H. C. Little Burner Co., Inc. Mr. Youngblood has had 14 years of sales experience at retail, wholesale and manufacturing levels.

► **GEORGE EMERSON** as a district sales manager for O. A. Sutton Corp. Mr. Emerson, formerly with Westinghouse Electric Corp., will handle sales of "Vornado" air conditioners and air circulators in Chicago, St. Louis, Milwaukee, Minneapolis and Peoria. Howard N. Morse has also been named a district sales manager and will handle the sale of air conditioners and air circulators in Georgia, Florida and eastern Tennessee.

Obituaries

George B. McClellan

GEORGE B. MCCLELLAN, sales manager of William Wallace Co., died suddenly at his home March 1, 1956. Mr. McClellan, 47 years old, became general sales manager of the firm in January of this year. Before that he was sales promotion manager, in which

☆ ☆ ☆

Manufacturers' Agents

*Are you interested in
securing additional lines?*

We are occasionally asked by our manufacturer advertisers to suggest the names of manufacturers' agents in various sections of the country whom they can contact in regard to representation of their residential and small building heating, air conditioning and sheet metal products.

If you would like your name listed on our records for inquiries we may receive on your territory, we invite you to write us. There is no charge in connection with this service.

American Artisan

**6 NORTH MICHIGAN AVENUE
CHICAGO 2 ILLINOIS**



**When
You've
Got to
Figure
the Job
TIGHT**

See the large Duro-Dyne ad on page 150
**Use Less Skilled Labor to make
excellent NON-BINDING louver
dampers with the**

**NEVA
BIND DURO-BLADE-KIT**

PRECISION ENGINEERED DAMPER HARDWARE

Make your own smoothly-
operating, NON-BIND-
ING louver dampers with
**LITTLE CARE AND NO
ALIGNMENT AFTER-
WARD.** Costs no more
than old type kits. You
make only frame and
blades.



DURO-DYNE CORPORATION

800-B Third Ave., New Hyde Park, New York



WHO-O-O

**MAKES CONTROL
INSTALLATION
EASIER?**

See page 25

**LOOK how many jobs
AN I-R
IMPACTOOL
WILL
DO.....**



Want real versatility . . . real power and speed for just about any job a portable power tool can do? Grip one of Ingersoll-Rand's five great Electric Impacttools—2U, 4U-SD, 5UT 8U and 34U—a size for every job. If you work on metal, wood, masonry or other materials, you'll save time, hard work and money when you own an Ingersoll-Rand Impacttool. Ask your Ingersoll-Rand Distributor for a free demonstration.

- RUN NUTS
- REAM
- DRIVE SCREWS
- SAW HOLES
- DRILL
- WIRE BRUSH
- TAP
- BORE WOOD
- DRILL MASONRY
- DRIVE STUDS

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N.Y.

10-330

Cut Installation Costs! One hammer blow permanently rivets



STANDARD
E-Z-ON
DAMPER
REGULATOR

E-Z-ON

E-Z-ON Damper Controls are easily, quickly installed to save you time and money. E-Z-ONS lower initial cost offers you additional savings and extra profits. Start saving money now. . . . Call your jobber today!

LEADING JOBBERS STOCK "E-Z-ONS"

In Canada — THERMIDAIRE CORP. LTD. Toronto

M.A. GERETT CORP.

724 WEST WINNEBAGO STREET, MILWAUKEE 5, WISCONSIN

WHITNEY

**Tinner's
Riveting Hammer**



T-12 Polished
B-12 Black
Weight —
12 ounces
Weight Dozen —
17 pounds

**Tinner's
Setting Hammer**



T-18 Polished
B-18 Black
Weight —
18 ounces
Weight dozen —
21 pounds

These hammers are used by workmen everywhere because their weight and balance make jobs easier.

Whitney hammers are accepted because of perfect balance, the leather grip which CAN'T loosen, and because the sheet metal edge cannot damage the handle neck. One-piece prevents breakage and splintering. Made in both polished and black finish.

Please write us for literature.



WHITNEY MFG. CO.
636 RACE ST. ROCKFORD, ILL.

Carried in stock by
all leading job-
bers.

Obituaries

capacity he supervised national promotion activities for "Metalbestos" gas vent pipe. He joined the company nine years ago as district sales manager in the southwest area. He is survived by his wife and two daughters.

Edwin H. Schield

EDWIN H. SCHIELD, for the past two years president of the Sheet Metal Contractors Association of Wisconsin, Inc., died suddenly at his home in Wausau on Saturday, March 24. Mr. Schield, 67 years old, had served the association in many capacities over the past several years. He was head of the Sheet Metal Contracting Co. of Wausau.

Leslie C. Johnston

LESLIE C. JOHNSTON, 33, vice president of Char-Gale Mfg. Co., died at Fairview hospital in Minneapolis on March 6 of acute leukemia. Mr. Johnston was the son of C. L. Johnston, owner and president of the company. During the past few years he was in charge of the firm's sales activities. He is survived by his wife and three children.

Schild

The
**TRIPLE-LIFE
ALL-PURPOSE
SHEET-METAL CUTTER**

An essential tool in the automotive, air conditioning, heating, and building maintenance industries. Cuts panels cleanly—straight line, square, triangle, curve or circle. Blades easily sharpened, thinned or replaced. FREE replacement blade means two cutters for the price of one.

SCHILD MFG. CO. Dept. AA-56
4127 N. 60th Street Milwaukee 16, Wisconsin

LIST PRICE **\$5.95** WITH FREE EXTRA BLADE

ORDER FROM YOUR DISTRIBUTOR — DISTRIBUTOR INQUIRIES INVITED

WHO-O-O

**MAKES
BETTER
CONTROLS?**

See page 25



ORNAMENTS

STAMPINGS & SPINNINGS

Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

If you don't have catalog K, send for it NOW.

MILLER & DOING

89 ADAMS STREET

BROOKLYN, N. Y.

✓ *Check your
needs . . .*

- ☐ Personnel
- ☐ Equipment Sales
- ☐ Equipment Needs
- ☐ Manufacturers Agents
- ☐ Lines, etc.

Whatever your needs in any of the above classifications . . . you can solve them quickly with a classified advertisement. The space rates are reasonable and results are quick. Closing date—the twentieth of the month preceding issue.

When
You've
Got to
Figure
the Job
TIGHT

See the large Duro-Dyne ad on page 150

Make lowest cost residential
flexible connectors with
ECON-O-FAB



FINISHED CONNECTORS
COST LEAST WITH ECON-
O-FAB because NO OTHER
PRODUCT HAS THESE
LARGE DIMENSIONS.
Double-Loc Seam prevents cut
fabric and call-backs. Avail-
able in 50 ft. and 100 ft. rolls.

DURO-DYNE CORPORATION

800-B Third Ave., New Hyde Park, New York

ALLEN SODER-FLUXES FOR STRONGER JOINTS

For Soldering — Brazing — Welding



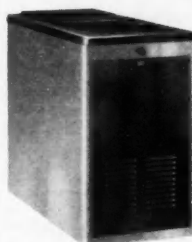
Write us
today for
Soldering
Ideas-FREE

You can get a com-
plete line of SOD-
ER-FLUXES from
Allen for soldering,
brazing and weld-
ing all metals.

L. B. ALLEN COMPANY, INC.
6702 Bryn Mawr
Chicago 31, Ill.

Thermo-Products, Inc.

"THE GOOD BUSINESS LINE"



Features a complete line of top qual-
ity units in Oil and Gas: Lo-Boy Base-
ment, Counterflows, Hi-Boy Upflows,
Oil-fired Horizontal Furnaces, Sus-
pended Counterflows, and Oil and
Gas floor furnaces. Dealers benefit
from our first unit profit plan. Find
out about our "Good Business Line".

WRITE FOR FREE LITERATURE!

Thermo-Products, Inc.
NORTH JUDSON, INDIANA



SUPER-JET GAS CONVERSION BURNER ... is the answer!

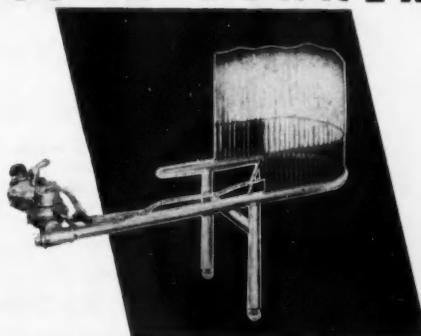
Super-Jet's advanced engineering has developed a silent, auto-
matic, multi-jet type conversion unit for complete heating com-
fort.

This burner generates own current for completely automatic
and safe operation, not dependent on any outside source for
current. Designed for natural gas — certified by AGA — with a
consumer guarantee.

Some territories still open for manufacturers' representatives
calling on wholesalers.

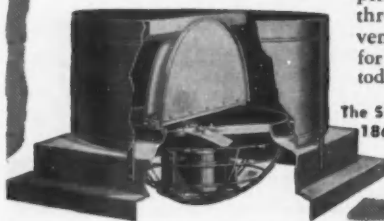
WRITE TODAY TO
DOWNING STEEL PRODUCTS CO.

4005 SMITHVILLE ROAD
DAYTON 9, OHIO



Swartwout Whirlout for powerful low-cost ventilation

You can literally *throw* heat and fumes out of factory workrooms with this economical, simplified "straight-through" powered ventilator. Write for Bulletin 351J today.



The Swartwout Company
18615 Euclid Avenue
Cleveland 12, Ohio

"CORRECT PRACTICE in OIL HEATING"

NOW AVAILABLE TO YOU!

A complete reprint of the valuable series

by J. J. Mirabile

This practical series covers every angle of oil burner work, including arrangement of shop . . . stocking of parts . . . record-keeping . . . installation procedures . . . the handling of crews . . . how to make heating surveys . . . how to size combustion chamber . . . how to install thermostat . . . how to start the burner . . . how to use testing instruments . . . and how to operate a service department. It contains, as well, a complete list of causes and cures of oil burner troubles that will serve as a reliable guide in making service calls.

Every shop handling oil burner jobs should own this book. Full size, 8½ by 11 inches — 57 pages of practical helps. Send \$1.00 for a copy to the address below.

KEENEY PUBLISHING COMPANY

6 No. Michigan Avenue

Chicago 2, Ill.

Copper - Brass - Bronze Perforated To YOUR REQUIREMENTS

PERFORATED METALS
FOR ALL INDUSTRIAL USES
ARCHITECTURAL GRILLES

New Catalog, No. 39, gives complete information.

DIAMOND MFG. Co.

BOX 34

WYOMING, PA.

Address Changing? Tell Us AT ONCE!

A new postal regulation relating to the handling of undelivered mail may result in some issues of *American Artisan* being thrown away instead of being returned to us — as they have been in the past — for remailing to your new or correct address.

To avoid missing any issue of *American Artisan* it is more important that ever to report both your new and old address to us and your post office. Deadline is the 18th of the preceding month for the next issue. Send changes — and new local postal delivery zone — to

AMERICAN ARTISAN

6 N. Michigan Ave.,

CHICAGO 2, ILL.

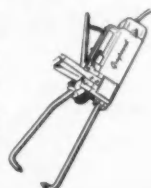
See the large Duro-Dyne ad on page 150

ONLY
\$115.00
for a
COMPLETE
SPOT
WELDER

(Weights 23 lbs.)

GREYHOUND PORTABLE SPOT WELDER

A Complete, Self-Contained Portable unit. Can be plugged into any outlet. No skill or experience necessary to operate. Does work of large welders costing many times more. Ideal for duct fabrication on or off the job.



DURO-DYNE CORPORATION

800-B Third Ave., New Hyde Park, New York

Check

FAMOUS For Service

The Famous Furnace Co.
Cleveland, Ohio

The Famous Furnace Co. of Warren
Warren, Ohio

The Famous Furnace & Supply Co.
Wheeling, W. Va.

The Famous Furnace Co. of Mansfield
Mansfield, Ohio

The Famous Furnace Co. of Lorain
Lorain, Ohio

The Famous Furnace Co. of Steubenville
Steubenville, Ohio

The Famous Furnace Co. of Akron
Akron, Ohio

The Famous Furnace & Supply Co., Uniontown, Penna.

COMPLETE ONE-STOP SERVICE AT ANY OF THE ABOVE LOCATIONS

FURNACES — BOILERS — COOLING EQUIPMENT — ROOFING
SHEETS — MACHINERY — HAND TOOLS — ACCESSORIES

Classified Advertising

Rates for classified advertising are 12 cents for each word, including heading and address. One inch \$6.00. Count nine words for keyed address. Minimum \$2.00. Closing date 20th of month preceding publication.

situation open . . .

ENGINEERING
OPPORTUNITY
WITH YOUNG GROWING
MIDWESTERN COMPANY
LIBERAL STARTING SALARY.
EXCELLENT
ADVANCEMENT POSSIBILITIES
PROFIT SHARING —
RETIREMENT PLAN
CONGENIAL SURROUNDINGS
IN A NEW MODERN
AIR-CONDITIONED PLANT.

Young Engineer with experience in oilburner design and service. Commercial and industrial experience desirable but not required. Basic duties consist of fuel design and application. Write giving full resume of College work, experience and references. Address reply to —

Mr. E. O. Olson

Chief Engineer

DEHAVAN MANUFACTURING CO.

West Des Moines, Iowa

agents wanted . . .

DISTRIBUTORS WANTED

There's more business, more profits for you when you handle our complete line of professional shears, trimmers, and tinners' snips! Here's why: established name, exclusive product features, and promotional aids give you a running jump on competition! Write us today and we will rush you all details.

W. H. COMPTON SHEAR COMPANY

318 Camden Street Dept. C3 Newark 3, N. J.

Heating and air conditioning service men, salesmen and engineers. Profitable dignified accepted item. \$10.00 profit per \$28.95 sale. Exclusive territories available. Write Comfort, Box 455, Highland Park, Illinois.

for sale . . .

1/4" Ribbed Wire Glass, Stock Sheets. 30c sq. ft., cut sizes slightly extra, plus boxing. F.O.B. our warehouse, Atcheson Glass Co., 920 Main St., Buffalo, New York.

SERVICE SECTION

Rates for display space in the Service Section are \$12.00 per inch per insertion. One-inch minimum space accepted. Closing date — twentieth of the month preceding issue.

This section represents an ideal opportunity for manufacturers to get their messages across to readers of a national publication in their field. Whatever you make or sell, you'll find a large, receptive audience, easily reached at a minimum outlay. Plan now to move your products quickly and economically with consistent advertisements in this section.

ADJUSTABLE ELBOWS

Registers and Grilles
Deliveries from Stock

Juniper Elbow Co. Inc.
72-15 Metropolitan Ave.
Middle Village, L.I., N.Y.



RUBBER LADDER SHOES

for safe climbing
... Order today.

JOHNSON
LADDER SHOE CO.

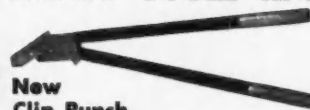
Eau Claire, Wisconsin

Drive Cleat Notcher



Handles up to 3" wide, 22 ga. or lighter. Hand or foot operation. Mounts on bench, or on job with clamps, or bolts and screws.

HANDY TOOLS AND EQUIPMENT



New Clip Punch

For fastening slips or seams on ducts. Will push a "half moon" through 3 thicknesses of 18-ga. steel. No hammering or flattening out to fasten slip to the duct.

COMPLETE LINE OF SHEET METAL MACHINERY

REINER & CAMPBELL CO., Inc.

Post Office Box 5035, Newark 3, N. J.

Quick Set Dividers



Fastest and most accurate on the market. Two sizes for circles up to 36" and 48". Removable steel points, or pencil. No center punch.

SHEET METAL MACHINES & TOOLS

Lockformer Machines
Chicago Hand Brakes
Chicago Press Brakes
Pexto Power Shears
Pexto Foot Shears
Pexto Rotary Machines
Pexto Slip Rolls
Pexto Bar Folders
Smith Cleat Benders
Savage Nibblers
Mipaton Pittsburgh Lock Hammers

Peer Spot Welders
Reed Power Rolls
Wysong Shears
Whitney Punches
Whitney Foot Presses
Pexto Machinery's Tools
Black & Decker Tools
Sott-Marr Bandsaws
Marshalltown Presses
Punches and Dies

SEND FOR CATALOG

CENTRAL-WEST MACHINERY CO.

335 S. WESTERN AVE. CHICAGO 12, ILL.
PHONE: Haymarket 1-0900

DRILL HOLES IN CONCRETE THE FAST AND EASY WAY

For drilling concrete from quarter-inch to 1 1/2" diameter, use the Wodack "Do-All"® Electric Hammer and Drill. With this combination tool, loosen and remove the hammer member and you have a 3/8" electric drill. Two tools for the price of a hammer. Contractors buy it again and again for its dependability and drilling speed. Send a postcard today for Bulletin 510-AA. WODACK ELECTRIC TOOL CORP., 4627 W. Huron St., Chicago 44, Ill., U.S.A. Phone Austin 7-9866. ELECTRIC HAMMER



ELECTRIC DRILL

Our 40TH YEAR Making Wodack® Tools

business opportunity . . .

Warm Air Heating, Air Conditioning and Sheet Metal shop. Central Ill. Est. 25 Years. Nice Building, Trucks, Machinery and Inventory all for \$32,000.00. Profit in 1955 \$17,000.00. Books open to bonafide buyer. Owner retiring. Address Key 1037, American Artisan, 6 North Michigan Ave., Chicago 2, Ill.

lines wanted . . .

Wanted: Lines in Warm Air Heating, Air Conditioning and allied products to handle on Manufacturers Agent basis. Territory. Southern part of West Virginia with Headquarters in Charleston, W. Va. Have office and personnel capable to handle job. Know the trade and have many years of experience in this field. Address Key 1040, American Artisan, 6 North Michigan Ave., Chicago 2, Ill.

"CORRECT PRACTICE in OIL HEATING"

This special series covers every angle of oil burner work, including arrangement of shop . . . stocking parts . . . record-keeping . . . installation procedures . . . the handling of crews . . . how to make heating surveys . . . size combustion chambers . . . install thermostats . . . start burners . . . use testing instruments . . . and operate a service department. It contains, as well, a complete list of causes and cures of oil burner trouble—57 pages of practical helps. Send \$1.00 for a copy to the address below. KEENEY PUBLISHING COMPANY, 6 No. Michigan Ave., Chicago 2, Ill.

INDEX TO ADVERTISERS

A A & A Register Co., The 162 A-J Mfg. Co. 12 A-P Controls Corp. * Adelta Mfg. Co., Inc. * Advance Furnace Co., The * Aerofin Corp. 152 Air Conditioning Div. of American Standard 35, 36, 37, 38, 39 Air Controls Inc., Div. Cleveland Heater Co. * Air Control Products Inc. * Airtemp Div., Chrysler Corp. 63 Ajax Furnace Fitting Co., Div. Cincinnati Sheet Metal & Roofing Co. * Allegheny Ludlum Steel Corp. 135 Allen Co., Inc., L. B. 187 Alton Mfg. Co. * Alter Co., The Harry 182 American Air Filter Co., Inc. * American Brass Co., The * American Coolair Corp. 174 Anchor Post Products, Inc., Fluid Heat Div. * Anemostat-Corp. of America * Armco Steel Corp. 157 Armstrong Co., The 183 Armstrong Fittings Co. * Armstrong Furnace Co. * Auer Register Co., The 119 Auto Flo Corp. * Automatic Humidifier Co. 182	Elgo Shutter & Mfg. Co. * Empire Ventilation Equipment Co. * Engel Sheet Metal Equipment Inc. * Evans Corp., The George 178 Excelsior Steel Furnace Co., The * F Fallsington Mfg. Co. * Famous Furnace Co. 188 Field Control Div. of H. D. Conkey & Co. 117 Flagler Corp., The * Follansbee Steel Corp. 151 Frigidaire Div., General Motors Corp. 47 G Galvan Mfg. Co. * General Controls Company * General Electric Company 28, 29 General Filters, Inc. * General Gas Light Co. * General Register Corp. * Gerrett Corp., M. A. 186 Goodyear Tire & Rubber Co., Inc., The * Great Western Steel Co. * Gustin-Bacon Mfg. Co. 45 H Hall-Neal Furnace Co. 26 Halstead & Mitchell 131 Hart & Cooley Mfg. Co. 31, 184 Heil Co., The * Henry Furnace Co., The 109 Herbster Furnace Company * Herdall Co., A. M. * Hussey & Co., C. G. 20 I Independent Register Co., The * Ingersoll Conditioned Air Div., Borg-Warner Corp. * Ingersoll-Rand Company 185 Inland Steel Co. * Inland Steel Products Co. 3 Insto-Gas Corp. * Insul-Lyte Corp., Div. of Pibrico Co. * International Heater Co. * International Nickel Co., The 155 J Jackson & Church Co., Inside Front Cover Janitrol Div., Surface Combustion Corp. 111 Johns-Manville * Johnson Ladder Shoe Co. 189 Juniper Elbow Co., Inc. 189 K Kalamazoo Furnace & Appliance Mfg. Co. * Kaiser Aluminum & Chemical Corp. * Kirk & Blum Mfg. Co., The * Krueger Sentry Gauge Co. 8 L Larkin Coils Inc. 175 Lau Blower Co. 57 Lewov, David * Lennox Industries, Inc. * Lima Register Company 122 Lincoln Furnace Co., The * Little Giant Vaporizer Co. * Lockformer Co., The 7 L. O. F. Glass Fibers Co. *	M Maid-O-Mist, Inc. 33 Malco Products * Majestic Co., Inc., The 164 Marley Co., The 140 Marshalltown Mfg. Co. 180 Maxwell Steel Company * Metromatic Manufacturing Co. * Meyer & Bro. Co., F. 170 Midco Register Corp. * Mid-Continent Metal Products Co. * Miller & Doing 187 Milwaukee Gas Specialty Co. 108 Minneapolis-Honeywell Regulator Co. 16, 17, 66, 67 Mitchell Mfg. Co. 178 Modern Materials Co. * Modine Mfg. Co. 177 Morrison Products, Inc. 153 Morrison Steel Products, Inc. 132 Mueller Climatrol Division of Worthington Corp. 5 N National Engineering & Mfg. Co. * National Lock Company 166 National Metal Fabricators 177 National Super Service Co., Inc. 180 Nelson, Herman Div. of American Air Filter Co., Inc. * Nesbitt, Inc., John J. * Niagara Furnace Div., Forest City Foundries Co., The 61 Niagara Machine & Tool Works 134 Norman Products Company 10 Nu-Way Corp. 10 O Oil-Heat Institute of America, Inc. 40 Olson Mfg. Co., C. A., The 24 P Palmer Mfg. Co. 148 Parker-Kalon Div., General American Transportation Corp. 59, 182, 183 Patco Mfg. Co. * Patten Co., J. V. 179 Peck, Stow & Wilcox Co., The 125 Peerless Electric Co., The 120 Peerless Corp., The 120 Penn Controls, Inc. 25, 185, 186 Perfection Industries, Div. of Hupp Corp. * Premier Co. 168 Pullman Vacuum Cleaner Corp. 181 Purulator Products Inc. * Q Quietdraft Co. 160 Quiet Automatic Burner Corp. * R Radiant Utilities Corp. * Rawplug Co., Inc., The 156 Research Products Corp. * Reiner & Campbell Co., Inc. 189 Replacement Parts, Inc. 168 Republic Steel Corp. 14, 15 Revere Copper & Brass, Inc. 99 Reynolds Metals Co. 114 Rheem Mfg. Co. 23 Richmond Radiator Co. 172 Rolled Steel Products * Round Oak Company * Ryerson & Son, Inc., Jos. T. 68 S Schild Mfg. Co. 186 Scully Signal Co. 173 Sequoia Mfg. Co. 107 Shana Mfg. Co. 144 T Silvercote Products, Inc. * Skil Corp. 161 Skuttle Mfg. Co. * Smith Corp., A. O. 184 Smith, R. E. * Southwest Mfg. Co. 169 Standard Furnace Supply Co., Ltd. * Standard Stamping & Perforating Co. 133 Stanley Works, The 158 Steinen Mfg. Co., William 6 Stewart Mfg. Co. * Stewart-Warner Corp., U. S. Machine Div. 105 Stic Klip Mfg. Co., Inc. * Sundstrand Engrg. Co. * Sundstrand Hydraulic Division * Superior Metal Fabricating Co. * Surface Combustion Corp. 111 Sutton Corp., O. A. 11 Swartwout Co., The 188 Synchronomatic Corp. * U Tecnunseh Products Co. 124 Temco, Inc. 159 Thatcher Furnace Co. * Thermac Company 128 Thermo-Base Div., Gerwin Industries Inc. * Thermo-Products, Inc. 187 Thor Metal Products Co., Inc. * Titus Mfg. Corp. 9 Tordheat Division, Cleveland Steel Products Corp. 147 Tuttle & Bailey, Inc. * Typhoon Air Conditioning Co. * V United States Air Conditioning Corp. * United States Register Co. 55 United States Steel Corp. * U. S. Steel Supply Div., United States Steel Corp. * Utility Appliance Corp. 41 Utility Fan Corp. * W Walker Mfg. & Sales Corp. * Wallace Co., William 146 Washington Steel Corp. * Waterman-Waterbury Co., The 53 Weirton Steel Co. * Westinghouse Electric Corp., Air Conditioning Div. 49, 50, 51, 52 Wheeling Corrugating Co. 121 White-Rodgers Elect. Co. * Whitney Mfg. Co., W. A. 186 Whitney Metal Tool Co. 184 Williamson Co., The 42, 43 Wilson, Inc., Grant * Windmaster Corp. * Wiremold Co., The * Wiss & Sons Co., J. 127 Wodack Electric Tool Corp. 189 Worcester Brush & Scraper Co. Div. * Mason-Worcester Brush Co. * Worthington Corp. 18, 19 Y York Corporation 129 Z Zatko Metal Products Co. * Zink Co., John Inside Back Cover
---	--	--

Firms represented in this issue are identified by the folio of the page on which their advertising appears. Advertising which appears in other issues is marked with an asterisk.



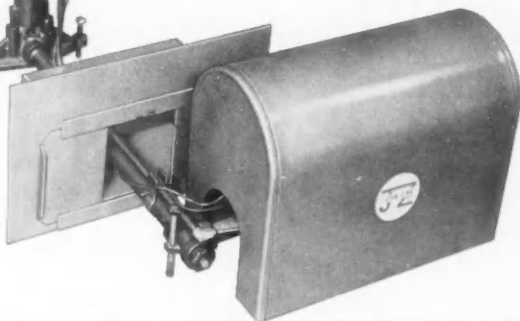
CENTRAL HEATING UNITS

gas fired *Conversion* burners



Your customers will like the economy and efficiency of a JZ Gas Conversion Burner that eliminates coal storage and handling.

JZ Gas Fired Conversion Burner is fully automatic with a choice of electric or gas-actuated controls.



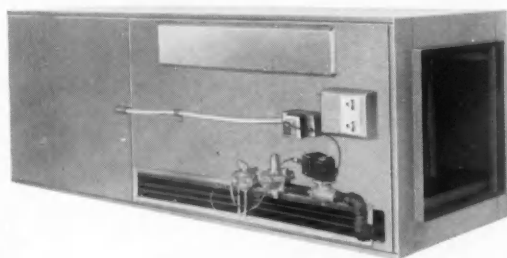
Installation — it is easy to make a workman like job — just bricks in ash pit opening of furnace — and it will fit 98% of the domestic heating plants. Gas Control Valves, pilot and piping are all shipped in a complete package assembly.

One Model #CB-200, on natural gas has input rating of 75,000 to 200,000 Btu. Pipe size $\frac{3}{4}$ ". A.G.A. approved.

Central gas heaters

VERTICAL OR HORIZONTAL

Central Heating Units that are universally adaptable; a complete package unit ready for installation. Vertical and Horizontal models of equal efficiency permit installation in basement, attic, service closet or utility room in old or new homes.



The Horizontal model can even be installed under the house, or for industrial heating can be installed on shelf or balcony; used as a suspended heater or as a duct heater.

Capacities from 65,000 Btu/hr input on natural, mixed or L.P. gas. A.G.A. approved.

Write for illustrated literature and prices.



JOHN ZINK COMPANY

4401 S. PEORIA TULSA, OKLA.



"Doesn't he know that by specifying
White-Rodgers Controls he can
cut out all those complaints?"

Complaints or congratulations . . . which will you get from your customers? Controls can often make the difference, you know.

This dependable and accurate White-Rodgers stack switch, for example, is engineered to operate reliably at temperatures as low as 200° . . . and as high as 1000°. Gives you the reliable operation you need to make modern oil burner installations work perfectly . . . right from the start!



WHITE-RODGERS *Controls*

FOR HEATING • REFRIGERATION • AIR CONDITIONING

ST. LOUIS 6, MO.
TORONTO 8, ONTARIO